THE

COMMERCIAL POWER

OF

GREAT BRITAIN;

EXHIBITING

A COMPLETE VIEW OF THE PUBLIC WORKS OF THIS COUNTRY,

UNDER THE SEVERAL HEADS OF

STREETS, ROADS, CANALS, AQUEDUCTS, BRIDGES, COASTS, AND MARITIME PORTS.

BY THE BARON DUPIN,

MEMBER OF THE INSTI[illegible] OF FRANCE,

&c. &c.

TRANSLATED FROM [illegible] FRENCH.

IN TWO VOLUMES,

WITH

A QUARTO ATLAS OF PLANS, ELEVATIONS, &c.

VOL. I.

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MDCCCXXV.

THE

COMMERCIAL POWER

OF

GREAT BRITAIN.

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ADVERTISEMENT.

The enlightened and philosophical views displayed by the Baron Dupin in his Travels through Great Britain;—the great mass of official documents to which he has had access, and many of which he has, for the first time, reduced into a popular and comprehensive shape;—the peculiar opportunities of observation which have been afforded him, and the assistance which he has received from some of the most celebrated scientific men of the country;—all these circumstances have induced a belief that a Translation of his last work on the Commercial Power of Great Britain would be particularly acceptable. The subjects which are treated of in this production have, more than almost any others, occupied the attention of the Legislature and the Public for several years;—and an impulse has been given to the improvement of our Roads, Canals, Docks, and Harbours, which even since this recent publication of the Baron Dupin, are going forward with as much splendour and usefulness as the most magnificent works herein described. The Editor originally contemplated a supplementary notice of these new projects; but he found it so impossible to follow the course of these improvements in any thing like reasonable

limits, that he declined the task, in the fear that he should be quite unable to emulate the accuracy and the extent of the Baron Dupin's researches and personal observations.

In the translation now offered to the public, a few passages of the original have been omitted;—the omission has been pointed out in the particular passages—and they are confined to one or two scientific details, not possessing a general interest in this country.

A considerable delay, for which the Publisher has to apologise, has taken place in the appearance of this work. It has been occasioned by the extreme labour required in rendering the French calculations of measure and value into English terms. A valuable service to the English reader has been rendered by this operation;—the difficulty of which can only be felt by those who particularly know how greatly a decimal system of notation varies from our ancient and less scientific method. The accuracy of the calculations in these volumes has been tried by several tests, and the Editor trusts that no very considerable error has escaped him.

June 15, 1825.

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INTRODUCTION*.

Δικαίου πολίτου κρίνω τὴν τῶν πραγμάτων σωτηρίαν ἀντὶ τῆς ἐν τῷ λέγειν χάριτος αἱρεῖσθαι.

Ολυνθιακ. τρίτος. Δημοσθ †.

To analyze with regularity the elements of which the British Power is composed, we have first examined the institutions and the operations of the "Military Power," and of the "Naval Power." We have pointed out the means, offensive and defensive, of a country which nature has separated from the rest of the world, by the obstacles of the sea, and which nautical science has surrounded by ramparts hitherto impregnable; ramparts which serve also as means of attack; which convey armies from one hemisphere to ano-

* Read at the general sitting of the Institute of France, June 2, 1823.

† I hold it to be the part of an upright citizen to prefer the advancement of the public good to the popularity procurable by the language of adulation.—Demosthenes, 3d Olynth.

ther, and which, even on the most distant shores, meet with England still! England, equally prudent and ambitious, possesses on every continent, out-posts which, according to the fluctuations of her fortune, in turn give aid to her in conquest, and refuge in retreat; and which, at all times, are fields for the enterprise and activity of a commerce which braves every danger, and never allows itself to rest.

Let us pause for a moment to contemplate this spectacle, unexampled in the history of nations. In Europe, the British Empire borders, at once, towards the north, upon Denmark, upon Germany, upon Holland, upon France; towards the south, upon Spain, upon Sicily, upon Italy, upon Western Turkey. It holds the keys of the Adriatic and the Mediterranean; it commands the mouth of the Black Sea, as well as of the Baltic. No sooner had its navy, the arbiter of the Archipelago, ceased to be adverse to the cause of Greece, than on the instant the ports of Peloponnesus found new liberators in the posterity of the Heraclides: and, from Corinth to Tenedos, the sea which leads to the Bosphorus, became to the descendants of the Argonauts

the road to victory, and to a second and a richer golden fleece—National Independence! In Europe the British Empire permits this conquest.

In America it gives boundaries to Russia towards the Pole, and to the United States towards the temperate regions. Under the Torrid Zone it reigns in the midst of the Antilles, encircles the Gulf of Mexico, till, at last, it meets those new states, which it was the first to free from their dependence on their mother-country, to make them more surely dependent upon its own commercial industry:—and, at the same time, to scare, in either hemisphere, any mortal who might endeavour to snatch the heavenly fire of its genius, or the secret of its conquests, it holds, midway between Africa and America, and on the road which connects Europe with Asia, that rock to which it chained the Prometheus of the modern world.

In Africa, from the centre of that island devoted of yore, under the symbol of the cross, to the safety of every Christian flag,—the British Empire enforces from the Barbary States that respect which they pay to no other power. From the foot of the Pillars of

Hercules, it carries dread into the heart of the remotest provinces of Morocco. On the shores of the Atlantic it has built the forts of the Gold Coast and of the Lion's Mountain*. It is from thence that it strikes the prey which the Black furnish to the European, races of men; and it is there that it attaches to the soil the freed-men whom it snatches from the trade in slaves. On the same continent, beyond the tropics, and at the point nearest to the Austral Pole, it has possessed itself of a shelter under the very Cape of Storms. Where the Spaniards and the Portuguese thought only of securing a port for their ships to touch at;—where the Dutch perceived no capabilities beyond those of a plantation,—it is now establishing the colony of a second British people; and, uniting English activity with Batavian patience, at this moment it is extending around the Cape the boundaries of a settlement which will increase in the South of Africa, to the size of those states which it has founded in the North of America. From this new focus of action and of conquest, it

* Sierra Leone.

casts its eyes towards India; it discovers, it seizes, the stations of most importance to its commercial progress, and thus renders itself the exclusive ruler over the passes of Africa, from the east of another hemisphere.

Finally—As much dreaded in the Persian Gulf, and the Erythrean Sea, as in the Pacific Ocean and the Indian Archipelago,—the British Empire, the possessor of the finest countries of the East, beholds its factors reign over eighty millions of subjects. The conquests of its merchants in Asia begin where those of Alexander ceased, and where the Terminus of the Romans could never reach. At this moment, from the banks of the Indus to the frontiers of China—from the mouths of the Ganges to the mountains of Thibet; all acknowledge the sway of a mercantile company, shut up in a narrow street of the city of London!

Thus, from one centre, by the vigour of its institutions, and the advanced state of its civil and military arts, an island which, in the Oceanic Archipelago, would scarcely be ranked in the third class, makes the effects of its industry, and the weight of its power, to be felt in every extremity of the four divisions of

the globe; while, at the same time, it is peopling and civilizing a *fifth*, which will follow its laws, will speak its language, and will adopt its manners with its trade, its arts, its cultivation, and its enlightenment.

This immense and wide-spread extent of colonies and provinces, which would cause the weakness and the ruin of any other nation, constitutes the safety and the power of the British people. It is because England is separated from her exterior provinces by enormous distances that she is not vulnerable through them: it is because these provinces are separated one from another by distances so great that they cannot at the same time fall under the blows of one adversary. To attack them is difficult; to blockade them is impossible. To supply the wants of industry, of trade, and of government, between the mother-country, and possessions scattered upon the shores of every sea, a vast number of ships is necessary, even in time of peace; and these ships ready to set sail at a moment's notice towards the threatened point, carry thither reinforcements and succour, which render it impregnable, either by famine or by force.

It is true that in any *one* of her distant provinces, England could not contend single-handed against its most powerful neighbour. But everywhere the most formidable nation is to the rest the object of envy, and of hatred hidden only by fear. Thus (if I may so speak) one of the most skilful branches of English industry, is the art to change into declared hostility the secret ill-will of surrounding nations. This is an additional interest which the capital of her commerce yields to her.

As for the nations which have no establishments on the frontiers of the English possessions, the sphere of their action is much more limited than that of her influence. No one of them could support a contest with Great Britain, on a field equally distant from both mother-countries; for no other nation has equal means to transport rapidly to a distance its arms and its defenders: such is the superiority of Commercial Power. One great example will place this truth (which is not yet sufficiently acknowledged) in a more striking point of view.

We see the Roman people stick to the earth like a persevering miner; advance by

sapping, and from parallel to parallel, to take by degrees, all the military posts of the ancient world. It devotes eight hunded years to prosecute the siege of the universe. At last, insurmountable obstacles oppose a barrier to its invasions. Its aggressive force is shivered against Parthian flight and German resistance. It stops from very weariness before it reaches India.

The empire then rests as though oppressed with the burden of its greatness. Its defence needs more numerous armies than ever its conquests had needed. Nevertheless, these clouds of soldiers, scattered over an immense frontier, without means, without resources easy and quick of transport and concentration, find themselves everywhere isolated and weak. Warriors sufficing no longer, it became necessary to dig ditches and build walls, to shelter the empire of the Scipios and the Cæsars from being surprised by the barbarians. But such barriers are of strength, only through the armed men by whom they are defended. They never can stop the irruption of people, even the most ignorant of the art of war. The empire, pressed on all sides, decreases even more quickly than it

had spread. It repasses the limits of each successive aggrandizement, even to its own entire downfall.

With a commercial and maritime industry, comparable to that of England, Rome, instead of making its offensive forces stationary, would have made even her defensive forces moveable. She would have carried them in time upon each threatened point, and would everywhere have shewn herself superior to the unconnected and intermitting aggressions of nations, strangers to the resources of civilization. The British empire, then, possesses in itself a principle of resistance which was wanting to the empire of the Romans. This principle is that of Commercial Power.

There was a time when to estimate according to its real greatness the power of a rival people, and to make that estimation known, would have displayed in the friend of our fellow-citizens the enemy of their glory, and the contemner of the superiority of a nation which wished to remain blinded. The flatterers of nations, as dangerous and corrupting as the parasites of kings, represented to the people of the continent, the dominion of the British Islands as having reached the

brink of ruin, and declining at length from its zenith, at the very moment when it was digging the trench wherein to lay and to cover the foundations of a power entirely new.

In the eyes of a philosopher, the power of nations is a fact which he studies, as a naturalist studies a phenomenon, as a geometrician studies mathematic truths, to learn its principles, to discover its consequences. Such is the philosophy which ought to guide the traveller, if he wishes to give to what he relates the authority of history; or rather if he wishes to bring back history to its native origin, to replace it among the sciences of observation, and to render it what it was in the times of Herodotus and of Xenophon, of Polybius, and of Tacitus,—the science of the things and the places which we ourselves have seen*.

What portion of its prosperity the British empire, contemplated in this spirit, owes to Commercial Power, few words have sufficed

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* Καθ' ἱϛοριαν πλανηθῆναι: *Ad visenda loca, et mores hominum cognoscendos peragrare.* "To travel as an historian: to travel to see places and to become acquainted with the manners and morals of men." Such was the idea which Plutarch formed to himself of the real spirit in which we ought to travel.

to shew. But what means, what labours, have produced that power itself? Could similar labours, could analogous means have raised other nations to the same degree of power? Can they do so still? This is what it behoves us to know: as Frenchmen, for the advantage of France; as friends of all humanity, by that just and generous sentiment which makes us feel interest in the dignity, the peace, the independence, the happiness of all nations, on whatever spot of the globe nature may have placed their country.

Actuated by these great motives, we wish to learn the causes of the commercial prosperity of England. Let us beware of thinking we see them only in the deceptions of craft, and in the abuse of power.

The successes obtained in the government of the arts, are similar to the successes obtained in the government of men. We may succeed for a time, by fraud, by surprise, by violence: we can succeed permanently only by means directly opposite. It is not alone the courage, the intelligence, the activity of the manufacturer and the merchant which maintain the superiority of the productions and the

commerce of their country; it is far more their wisdom, their economy, above all their probity. If ever, in the British Islands, the useful citizen should lose these virtues, we may be sure, that for England as well as for any other country, notwithstanding the protection of the most formidable navy, notwithstanding the foresight and activity of diplomacy the most extended, and of political science the most profound,—the vessels of a degenerate commerce, repulsed from every shore would speedily disappear from those seas whose surface they now cover with the treasures of the universe, bartered for the treasures of the industry of the three kingdoms.

It is necessary to penetrate farther into the knowledge of a national character to which the commerce of Britain owes its most astonishing successes. Let us contemplate this character, giving its own impulsion to the minds, as much as to the actions, of individuals; exciting an irresistible, insatiable ardour to surpass every rival, and above all to crush every foreign competitor, by a concurrence at once personal and national: and what means to accomplish such an end!—A cold, continuous, methodical activity, a calculated boldness,

which makes the speculator risk every thing which the foresight, I might almost say, the divination of calculation, shews to him as having, on the whole, fewer chances of failure than of success. Add to these qualities, that perseverance in all undertakings, whether joint or individual, which partakes of the stability of their institutions; and whence springs in the long run, that constancy of character, and that number of energetic virtues which exercises upon the soul an action of which the mainspring is a public spirit inspired by the excellence of public order, and by the inviolable protection of laws proportionately beloved.

To these moral causes, we must yet add the rules both of political and domestic economy, which are favourable to all interests, stimulating to all branches of industry, encouraging to all descriptions of talent.

As to physical causes, we shall place at their head the public roads and establishments which facilitate the transport, and render safe the deposit, of merchandise, both in the interior and in the vicinity of the outports;—the art of this conveyance, and of barter and exchange;—and, lastly, the creation

of those products of industry which are the subject matter of that barter and exchange.

We shall begin by describing the works executed with the intention to render, in every point of Great Britain, the communications necessary to internal commerce, rapid, easy, and of light expense; works which, so to speak, have drawn near to the coasts and outports, all the centres of production which industry has established within the bosom of the three kingdoms, at the same time that the progress and economy of navigation was drawing those kingdoms near to all the continents whither the British flag can reach.

After having followed the treasures of English industry to the sea-coast, through all those channels of interior communication, we shall trace its progress on board its ships and across the ocean. We will land with the mariners of England among every people which trades with her: we will examine that contest, apparently peaceful, which ever subsists between the commerce of England and that of other nations. Each people will offer to us the spectacle of a new species of combat; we shall see one raise itself to the race

by its prudence and economy; another by the delicacy and good taste of its productions; a third by its boldness and activity.—We shall see them, for the most part, become inferior and be beaten, from having been unable, to prosecute the contest with all these means united. Then we shall learn in how much the maritime and commercial greatness of the British Empire is fortuitous; and in how much it is foreseen, calculated, and necessary. We shall be able not only to reckon up the actual value of their sales, and of their territorial or mercantile acquisitions, but these data will also assist us to discover from the past the consequences which it may have upon the future. As a disciple of Archimedes learns to measure the durability of vessels according to his knowledge of their size and of their form, according to the action of their lading, of their sails, and of their rudders; so shall we learn to measure the stability of the British Power according to our knowledge of its physical resources and of its population; according to the combined action of its institutions and its laws.

The order which we shall adopt in inquiring into the commercial force of Great Britain, by

beginning to inspect and to describe the works which foster and develop it, even in the centre of the state, to follow it by degrees even to the most distant shores; that order is the only one, the example of which is fitting to be offered to France. It is the interior which it is necessary first of all to vivify—to animate with an energy which can afterwards, without, enable us to hold our proper place upon every point of the globe whither our commercial industry will go to scatter its benefits.

This order, however, is the opposite to that which the English have followed in their efforts to possess themselves of the commerce of all nations. This we learn from their history.

At the commencement of the seventeenth century England scarcely possessed practicable roads; she had no canals; but the seas offered to her canals and roads, unbounded as were the hopes and the desires of England. In the British ports, art had, as yet, added nothing to the gifts of nature; and yet Queen Elizabeth already caused the universe to be explored by the conquerors of the grand Armada. Already the English had formed,

under the auspices of their illustrious Queen, the East India Company, founded to prosecute a trade already known; and the Company of the North Seas, founded for the discovery and the acquisition of a trade of which they were as yet ignorant. In the same manner did the People-King, faithful to the worship of its ambition, erect in the Pantheon of conquered deities an altar to the unknown gods, that is to say, to the gods which they had yet to conquer.

The civil troubles which speedily followed after the reign of Elizabeth, were the means of carrying abroad, with a fresh ardour, the energy and activity of industrious citizens: And the lucrative acquisitions of external commerce were considered as the most fertile sources of both public and individual wealth, and as the element of the supremacy of the British people. Hence those stupendous efforts to rule upon the seas, and to acquire the preponderance upon the shores of every continent. But a power thus thrown so far beyond the territory which was to serve as its *fulcrum*, did not possess within itself the pledge of its durability and the guarantees of its prosperity:—it could lose by war that

which it owed to war; and, by the maritime industry of rival powers, that which it owed to its own maritime industry.

One of those geniuses who seem born to place upon new foundations the destiny of empires,—a minister who would be without equal in his age, if he had had equal probity towards foreigners, with that which he had towards his fellow citizens,—Lord Chatham—undertook to transplant into the very soil of the country the roots of the external power of England: He determined to make the fortune of the citizens, and thence the fortune of the state, independent of the chances and the necessities of war. Always faithful in his engagements with individuals, he dared to make Credit a defence, or a weapon wherewith to fight;—he united individual force with public force, and the diplomacy of courts with the resources of the useful arts; so that he might attack, through every channel, the power and the wealth of rival nations. In a word, war itself, as well as peace, and treaties undertaken and prosecuted with an object purely industrious, had oratory for its means, conquest for its accessory, calculation for its ally, and commerce for its principal end.

In the hall where the mercantile bodies of the city of London hold their general meetings, I read upon the pedestal of a monument, erected by their gratitude to the memory of Chatham, the following inscription, which made upon me a profound impression:—

"In grateful acknowledgment to the Supreme Disposer of events, who intending to advance this nation, for a time, to a high pitch of prosperity and glory, by commerce, for the first time, *united with and made to flourish by war*, was pleased to raise up as a principal instrument in this memorable work, WILLIAM PITT."

—It is necessary to point out the results of this astonishing conception.

It was under the administration of Lord Chatham, in the very midst of the seven-years' war, that we behold the commencement of all those great internal works useful to commerce, which are now the admiration of every foreigner. Up to 1756, England had not a single line of artificial navigation; she possessed, for communication by land, only a small number of roads, injudiciously cut, and ill kept up. Of a sudden, an individual conceives the idea to profit by the general impulsion which industry had received, by cutting a canal to carry to Manchester the product of his mines. Shortly afterwards a town which thrives, and of which the exuberant

wealth seeks everywhere productive outlets—Liverpool—aspires to still higher designs;—she is the first to form and to realize the project of opening a navigable channel between the Irish Sea and the German Ocean. Other channels, even more extended, are established by degrees: thus, within the short space of half a century, a double row of canals is formed, both for great and for small navigation, for the purpose of uniting together opposite seas; basins separated by numberless chains of hills and mountains; opulent ports; industrious towns; fertile plains; and inexhaustible mines;—and this presents a development of more than 1000 leagues in length, upon a portion of territory not equal to one-fourth of France!

In order to distribute the water necessary for the daily life of the inhabitants, and the gas which produces a light so brilliant and so pure, that it seems, even in the darkest nights, to be almost an anticipation of dawn,—to fulfil this one object of general utility, pipes and conduits have been laid down, which even already form a ramification of above 400 leagues beneath the pavement of London.

The communications in the open air are

an object of equal solicitude, and of works even vaster still. The roads which already existed are enlarged; are reconstructed with more art, and kept up with more care. New channels are thrown open to commerce, and a system of roads is now being formed, of which the total length is at present more than 46,000 leagues in England alone.

While these prodigies are taking place, basins and ports are constructed for shipping. Moles, piers, light-houses, newly established, increase the security of access, and the shelter of every anchorage upon a line of more than 600 leagues of coast. Thanks to these works, at this moment, in the three kingdoms, 22,300 merchant vessels manned by 160,000 men, and capable of carrying two millions of tons of merchandise, are scarcely sufficient for the exportation of the superfluity of interior circulation; for the trade along the coast, and for the importation of those foreign products necessary to keep up a circulation so immense.

Such is the progress, the origin of which dates only from the seven years' war; a progress which the disastrous war against the colonies of America slackened, but could not

interrupt; a progress, which on a sudden received new life, by the loss of these very colonies; a progress which, above all, has advanced with gigantic strides during the wars so bloody and so long of the republic, the consulate, and the empire of France.

It is thus that England was flourishing within, whilst her sacrifices, without, seemed to hasten her ruin and prepare her fall;—it is thus, that, even during peace, entering into a war of industry against all nations, animated by its internal commercial force, as a living being is by its vital force, she has overthrown all her rivals at the extremity of the new world, the same as in the heart of the old one. Once having gained the ascendency in this contest, she casts aside her ancient armour, and throws down the ramparts raised by her commercial prohibitions*. She opens her ports to foreigners, and offers them an entrepôt for their merchandise†. She asks only one favour of her rivals in industry, that is,

* For the last three years, the British Parliament has been repealing, in succession, the most odious restrictions of the famous laws known under the name of the Navigation acts.

† By the law relating to entrepôts, London is destined to become the rendezvous of nations, and the mart of the universe.

to descend, unarmed like her, into the arena where her recent exploits render her certain of victory.

What then has the British administration done to produce, in so short a time, public works which alone have rendered possible the great results of which we have been tracing the picture?—Nothing.—It has allowed commerce a free course, and has thought that it served it sufficiently in securing to it protection without, liberty within, and justice everywhere. It has allowed manufacturers, proprietors and merchants, of great, of moderate, and of small capitals, to confer with one another upon their mutual wants, upon the works which may be useful to them; and lastly, upon the means whereby themselves to undertake and to execute those works.

These works, which thus procure to commerce a new prosperity, had at the same time the advantage of adding to the value of landed property. To those territorial possessions which all human knowledge never will be able to extend beyond the boundaries which nature has given to them, it adds the possessions of industry, unlimited in their variety, their greatness, and their wealth, like the ge-

nius from which they spring. Thus, during the short interval of sixty years, commercial industry has created a property inseparable from the soil, to the extent of five hundred millions upon roads, of *a milliard* upon rivers and canals, and of another *milliard* upon the maritime ports and sea-coast*.

Gaining possession of these new acquisitions is not increasing in opulence alone. In becoming proprietors of canals, roads, bridges, basins, quays, and of the entrepôts necessary to commerce, citizens, at the same time, acquire the stable interest which is attached to the possession of immoveable goods, and the moveable interest which changes its objects or its seat, according to the arrangements and the vicissitudes of external commerce. Another benefit, also, is produced by these creations of industry. Whilst in England, ancient laws are favourable to the concentration of landed property, in too small a number of all-powerful hands,—there are other measures, which, full of wisdom, often put an end to this invasion of riches, by the property of combined

* M. Dupin's estimations are, of course, here given in francs.—TR.

capitalists:—a salutary check, established with a view to repair the deplorable losses which are experienced every day by the number of inhabitants who retain a part in the possession of the land of the country.

In praising the happy division of property which commerce has produced, if we wish to remain within the limits pointed out by experience, and commanded by justice, we must not consider as entirely detrimental the concentration even of agricultural fortunes. Like most imperfect establishments, consolidated by long existence, the unequal distribution of territorial riches presents to us a mixture of good and evil, which, thanks to the caprice of mankind, and above all, to the miserable calculation of their individual interest, furnishes apologists even to the most revolting abuses, and detractors even from the changes which offer the happiest compensations.

In England, we must admit that the immense fortune of some individuals contributes powerfully to the undertaking, and to the execution of works of general utility, which demand from the companies united for such undertaking and execution considerable advances of capital, and long personal sacrifices,

The great proprietors are not the enemies of improvements and inventions propitious to industry and favourable to commerce. Far from envying the success of the working classes, they incline a whole people to industry, to foresight, and to economy; which, in giving to them ease and happiness, can render them independent and proud, as it becomes a rich and a free people to be*.

Often the great families of England, have themselves descended into the ranks of in-

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* In the work which I have published, under the title "System of the British Administration in the year 1822," after having made known the admirable results of the Savings Banks, equally favoured by the working classes, by the opulent classes, and by the government, I add:—"Thus the British Ministry, in the account which it causes to be furnished of its acts, of its views, and of its thoughts, declares in the face of nations, that it places in the rank of benefits of public order and of social prosperity, not only the progress of the useful arts, and the activity of the manufactures, and the resources of commerce, and the happiness of the superior classes which direct those works; but also the development of the physical and moral independence of the inferior classes who execute those works. It delights in counting among its claims to glory the means of elevating, of exalting, the national character, in rendering more happy and less servile in all respects, the condition of even the humblest citizens; sentiments worthy of the ministry of a free people; sentiments which every man who attaches value to the dignity of the human species will honour with his homage; sentiments which deserve to be offered as models, to every government which wishes to walk in the path of national prosperity."

dustry, to acquire new claims to popularity, to esteem, and to honours. It is thus they have been able to produce works of public utility, which seem to surpass the means and the sacrifices of private fortunes.

If you travel in the provinces and on the coasts of Great Britain, you will everywhere meet with the monuments of this magnanimous spirit. Would you know who were the creators of that canal which brings life and activity into the neighbourhood, and even into the heart of a great manufacturing town? It is a Duke of Bridgewater, who conceived and executed that fine enterprise. Who were the creators of that rail-road which carries a ten miles' distance the products of a mine, and the travellers of a country, to the shores of the sea, brought into an artificial port? And what powerful society constructed the plans, the basins, the moles, and the buildings of that port? It is a Duke of Portland, who, single-handed, was equal to these great works.

If you go through the finest cities of Great Britain, you will find, equally, at every step, monuments of public utility, raised by the single munificence of some opulent and gene-

rous individuals. A private merchant built the London Exchange; a knight constructed, at his own cost, the great aqueduct of the New River; a Cavendish, a Bedford, have created, on their own estates, in the finest quarters of the metropolis, squares as vast as the Place de Louis XV., streets as regular as the Rue de Castiglione, and even more spacious than the Rue de la Paix.

At the sight of these noble creations, you will, no doubt, ask to go to see the mansions and the palaces of these patricians, and plebeians with royal fortunes, to whom such great works are due. Well, when you have had pointed out to you the outside and the situations of the simple houses which they inhabit, in the heart of the capital, you will hardly be able to distinguish their dwelling from those by which they are surrounded.

Does not this striking contrast recal to our mind some traits of the eulogy pronounced by Demosthenes upon the celebrated men, whose works, whose virtues, and whose moderation shed so much splendour upon flourishing Athens?—

"Such were the men," says he, when recalling their military and political services,

" such they were in relation to the general concerns of Greece. But in respect to this Athenian state in particular, judge for yourselves what their conduct was; as well in regard to the public interests as their own individually. For their public conduct—such and so many were the buildings and embellishments of temples which they erected, such the splendour of the offerings and the trophies which they dedicated, that no ground of pre-eminence has been left to any who succeeded them. In their private relations, so temperate were they, so perseveringly did they uphold the moral discipline of the state, that all of you who have any acquaintance with the condition of the houses of Aristides, of Miltiades, and their eminent contemporaries, must be aware that in point of splendour they were no ways distinguishable from those of their neighbours; for the state affairs were not then administered with a view to the personal objects of those in power; but each member of the admistration deemed it his individual business to promote the common welfare; and thus upon a system of fidelity to the universal interests of Greece—of piety to the Gods—and of equity at

home,—they reared (as good reason it was they should) a splendid state of prosperity*."

Doubtless, so magnificent an eulogium, which belongs only to the finest times of an age altogether heroic, can only be but partly applied to the powerful men of Great Britain†; but, at least, it recals some of their virtues, and some of their efforts to add to the splendour, the riches, and the civilization of their country.

This fine character of the opulent and privileged classes; this enlightened patronage; this real patrician part—can we not hope to see it worthily filled among us? Ah! If the memory of the benefits bestowed upon society by the Bedfords and the Bridgewaters, the

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* Ἐπὶ μὲν δὴ τῶν Ἑλληνικῶν ἦσαν τοιοῦτοι· ἐν δὲ τοῖς κατὰ τὴν πόλιν αὐτὴν θεάσασθε ὁποῖοι, ἔν τε τοῖς κοινοῖς καὶ τοῖς ἰδίοις. Δημοσίᾳ μὲν τοίνυν οἰκοδομήματα καὶ κάλλη τοιαῦτα καὶ τοσαῦτα κατεσκεύασαν ἡμῖν ἱερῶν καὶ τῶν ἐν τούτοις ἀναθημάτων, ὥστε μηδενὶ τῶν ὑπογιγνομένων ὑπερβολὴν λελεῖφθαι· ἰδίᾳ δ' οὕτω σώφρονες ἦσαν καὶ σφόδρα ἐν τῷ τῆς πολιτείας ἤθει μένοντες, ὥστε τὴν Ἀριστείδου, καὶ τὴν Μιλτιάδου, καὶ τῶν τότε λαμπρῶν οἰκίαν εἴ τις ἄρα οἶδεν ὑμῶν ὁποία ποτ' ἐστὶν, ὁρᾷ τῆς τοῦ γείτονος οὐδὲν σεμνοτέραν οὖσαν· οὐ γὰρ εἰς περιουσίαν αὐτοῖς ἐπράττετο τὰ τῆς πόλεως, ἀλλὰ τὸ κοινὸν αὔξειν ἕκαστος ᾤετο δεῖν. Ἐκ δὲ τοῦ τὰ μὲν Ἑλληνικὰ πιστῶς, τὰ δὲ πρὸς τοὺς θεοὺς εὐσεβῶς, τὰ δ' ἐν αὐτοῖς ἴσως διοικεῖν, μεγάλην εἰκότως ἐκτήσαντο εὐδαιμονίαν. Δημοσθ. ὀλυνθιακός ὁ τρίτος.—*Demosthenes' Third Olynth.*

† While we announce the fine actions and the great works of these powerful men, we shall not conceal, in the course of our work, the facts which diminish, in some respect, the glory of these titles.

Foxes and the Chathams, the Portlands and the Cavendishes, be always united with every idea of genius, of learning, and of eloquence; with every sentiment of patriotism and of loyalty; with every recollection of services rendered to the national industry, to the fortune of citizens, to the power of the state; have we not among us names equally illustrious to recal recollections of France and of the throne?

The names of Colbert and of Vauban, of Molé *, of Séguier †, of Malesherbes, and of

* France has not forgotten that the finest public works of an era in which she erected so many admirable monuments in the heart of the country, as well as among foreign nations, had Molé for their director. If among the smallest works undertaken with an object of usefulness, we might be permitted to cite our travels in Great Britain, and this work which is its fruit, it would be a duty for us to say, in this place, that they found the most noble encouragement, at the time when the Comte Molé was at the head of the ministry of the Marine.

† It is a circumstance worthy of remark, to see at the present day, two brothers of this name; one who presides over justice, in the first Royal Court of France, and who, in his tribunal, will give nothing but judgments; the other, consul-general for our interests in England, and who, in this important post, will give only obligations; both to our country, to enrich it with every thing he observes useful in a nation which he knows thoroughly,—and to individuals, whether merchants or travellers of France. It is in this last capacity that I must express my gratitude to the Baron Seguier, for the communication of his information, his observation, and his manuscripts, upon the commerce and upon the administration of Great Britain.

d'Aguesseau; of Lauraguais, of Choiseul*, and of La Rochefoucault—all these names, do they not still live in the heart of France? The public works and the industry of the citizens, are they not still proud of their assistance? And the guarantees of our finest institutions, have they not for their supports the greater part of the families which these names adorn?—of families which recal to our gratitude those fathers of the people, and those props of the throne, who,—l'Hôpital in the council, Montausier at court, and Sully, both with the army and at the treasury,—consolidated the supreme authority by the directions of their superior genius, and by the tutelary resistance of their austere virtues? Assuredly, Yes!—We can never, for a single instant, withdraw from our memory names which, in the annals of our fame, are inseparably allied to the recollections of our greatest

* It is not sufficiently known among us, that the magnificent roads cut from the capital to the principal points of our frontiers, were made for the most part under the administration of the Duc de Choiseul, one of the first statesmen of the eighteenth century; of that century, which, in the course of a single generation, displayed, in the persons of three other ministers, Turgot, Necker, and Malesherbes, as great a degree of talents and of virtues, as in administrations of the most brilliant eras of the monarchy.

works, of all our monuments, and of the finest traits of our national character. It is by the example of these elder worthies that the career of our modern worthies must be traced; and this example can never remain barren in a land where honour is the first of goods, and the most noble of payments.

By the side of the recollections which patrician greatness has left among us, let us recal with similar pride, for the fame of France, the beneficent works, and the patriotic undertakings of Jacques Cœur, of Riquet, of Laborde, of Beaujon, of Turgot, of Necker, and of so many other great men, who, winning their glory at eras still more recent, have consecrated, by their labour, their morals, and their genius, the titles of their families, and the henceforth historical rank of their posterity.

But let us not content ourselves with seeking for our country instances of isolated glory, and of hereditary fame: let us extend our views, with equal favour, upon all classes of society; let us endeavour to spread a generous spirit of association, turned towards the undertaking of works useful to the state. Then we shall see bonds of common interest, of private friendship, of individual esteem,

formed between all ranks, and in the midst of every party; and possibly public concord, together with the wealth and the power of the state, will be the consequence, less remote, perhaps, than we might at first sight hope, of the intercourse and the associations of which I am endeavouring to set forth, in their full light, the immense advantages.

This is no vain Utopia. In the country of which we are studying the prosperity, a grand and splendid experiment has shewn the power of those fortunate occupations to soften the bitterness of political passions, and to bring back internal peace by the agency of general well-doing. After the revolution of 1688, after the rebellion of 1745, what wounds were bleeding within every heart! What cruel recollections were festering in every soul! At this moment an useful diversion was created: Citizens of every class, united by a skilful government, to turn this concentrated ardour which burned within every mind, towards objects of general utility, made truce to their fatal discords. Whigs and Tories understood each other first, upon the improvement in the course of some river, upon the direction

of some road, upon the formation of some harbour. Each party perceived, with astonishment, that it was not true that it alone had had in view the general good, the glory of the state, and the increase of the public wealth; each, it is true, retained the social attitude in which its character and its habits of thinking had contributed to place it; the one continued to serve their country under the majestic shadow of the prerogative, and the other by the lights of their popular virtues. But these rival citizens placing above all things love of their country, united in their hearts with loyalty to their king; such a sentiment became the source of a happy sympathy between every soul—toleration entered into political creeds, as it had previously entered into religious creeds; and the English, in a few years, freed from the humiliating situation of a vanquished people, not only abroad by French heroes*, but upon their own soil, by undisciplined mountaineers†, rises into the glorious state of a nation, dic-

* At Fontenoy.

† M. Dupin here refers, it would seem, wholly to the period of the rebellion of 1745, and to the events of the war on the Conti-

tating to the continent the laws of war and peace*. So great is the external preponderance of an empire which makes industry and commerce flourish, on the vivifying hearth of patriotism and concord.

If we invite our fellow-citizens to follow the path in which for half a century England has walked, for her happiness, and for her wealth,—let it not be supposed that we wish

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nent immediately preceding; but even with respect to this period he can scarcely be considered as strictly accurate. *Un peuple vaincu* is the expression in the original, which, to ordinary ears, would scarcely seem to be justified by the loss of two or three battles. I am aware, that among the never-ending niceties of the French language, *vaincu* is the most gentle expression which can be used to convey defeat; but, in this case it should be applied to the army in Flanders, and at Preston Pans, not to the British people, as a nation. With respect to Fontenoy we were certainly beaten right soundly: but we can scarcely be more justly termed, on that account, a vanquished people, than the French could be for their defeat at Dettingen, a very few years before; or at Minden, not many years after. The loss of a battle must every now and then occur to every nation in the course of a war; but it is not the more, on that account, a vanquished one. The strict application of the phrase would be found to have very humiliating effects upon almost every nation of modern Europe. As for the successes of the Highlanders, in the early part of their irruption in 1745, the speed and completeness of their defeat and suppression form a sufficient answer to the extraordinary idea of their being the vanquishers of the British people.—TRANSLATOR.

* If the English have, at present, fallen from this glory, it is from causes foreign from commerce, and of which I do not speak, for that reason.

by that to cause France to stoop to the subaltern part of an imitator. On the great interest which we are now considering, as upon every other interest, public or private, France, far from following, has given the example of what it is fitting and noble to undertake. Foreigners have been obliged to begin by imitating her, to be able to raise themselves to the same height; and if, sometimes, they have surpassed her, it is only when she has ceased to imitate herself. But, instead of praising our country with vain words, let us speak by facts.

The middle ages were still in a state of barbarism, when Charlemagne already taught to his age, that a canal cut between the neighbouring source of the Danube and of the Rhine, could unite the Euxine Sea with the ocean, and the north of Europe with the west of Asia. Henry IV. was the first among the moderns to proceed from conception to execution, and to unite, by a canal, waters separated by a chain of mountains. With the same genius with which he meditated the alliance of kings for the happiness of nations, he was contemplating the junction of seas for the prosperity of continents, when the knife

of the assassin cut short the thread of those projects in which he was chalking out to Europe the true road to civilization and to social prosperity. Two generations of great men, under his son and his grand-son, were scarcely sufficient to realize even a small portion of his designs. The admirable works undertaken during his reign, to unite the Seine with the Loire, works interrupted for thirty years, after the fall of Sully, (that is to say, after the obsequies of his royal friend,)—Richelieu finishes. Richelieu displays to the European monarchies all the national advantage of yielding to the citizens the field, and the execution, of the interior channels of artificial navigation. Colbert, in the prosperity of a reign which owed to him so great a portion of its splendour, shews to the modern world, how it is possible to unite the ocean to the Mediterranean, by encouraging the zeal, and giving free scope to the genius of a private individual*; and the great Corneille immortalizes, in strains worthy of the Augustan age, the greatness of these works.

* De Riquet, so well seconded by the experience and the talents of Andreossi.

Finally, Louis XIV., the legislator of these same works, ordains that a jury, composed of the most eminent inhabitants, shall decide, by a course of conciliatory arbitration, all the differences likely to arise concerning the property of this new public channel and the adjoining lands; and an hundred years afterwards, England, recognising in this the spirit of their laws, was proud to follow this example.

And we, my dear fellow-citizens, we who are French, shall we be less active in following the examples bequeathed to posterity by the great reigns of Henri Quatre and of Louis XIV.? Shall we allow foreigners to profit more than ourselves by the plagiarism of a prosperity invented by our own ancestors? Shall we not again possess ourselves of one of the palms of our hereditary glory?

We will again possess it. Already the successes obtained by some useful citizens authorize this hope. A single company has just completed with rapidity one of our finest public works; the greatest and the boldest of our bridges, thrown across the Gironde*,

* The Gironde is the estuary formed by the confluence of

for the city of Bordeaux, the Liverpool of the South. Another company is about to unite, by a rail-road, the manufactories, the collieries, and the iron-works of St. Etienne with the banks of the Rhône, in the neighbourhood of Lyons; and thus open a communication worthy of our industry between the Birmingham and the Manchester of France*. At the gates of Paris, three companies have undertaken the formation of three canals, and others are being established with a similar view, in different parts of our territory.

In contemplating these works so worthy of praise, ought we already to believe ourselves

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the Dordogne and the Garonne, as the Humber is by that of the Ouse and the Trent. Bordeaux, however, is on the Garonne, eight or ten miles above this confluence; and it is across this latter river that the celebrated bridge of which M. Dupin speaks is thrown. The Gironde, properly so called, is at least two English miles across in its narrowest width. The bridge of the Bastide, however, at Bordeaux, is, in every respect a magnificent work; and was, I believe, completed in much less time than was originally expected.—TRANSLATOR.

* St. Etienne is the seat of the chief collieries in France; it is about five and thirty miles south-west of Lyons, and probably eighteen from the nearest point of the Rhône. The general want of (at least worked) coal-mines in France will in all likelihood retard the progress of manufacturing skill, as the abundance of fuel in England has so strongly contributed to the development of our own.—TRANSLATOR.

to be near the goal of our efforts? Let us judge by the state of advancement of our rivals. We are going to have about five leagues of rail-road, and our rivals have five hundred. We are about to have ten or fifteen companies for artificial navigation; our rivals have an hundred. With us, government is still obliged to execute, at greater cost, and with less speed, works which individuals, uniting their means, might undertake with so much success, did they but possess this noble ambition*.

Certainly, it is from the bottom of our hearts, that we yield in common with all France, thanks to the government, when it supplies, as far as its isolated efforts can sup-

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* The idea, at present in consideration, of establishing a general line of rail-roads throughout Great Britain, will, probably, in a few years, cause a considerable addition to the public works of a commercial nature, to which M. Dupin gives such just praise. It is, indeed, not one of the least extraordinary parts of this stupendous subject, to consider the extreme rapidity of scientific improvement and application; which thus will, probably, in a year or two, render even so recent and extensive a work as the present, comparatively imperfect and obsolete. The application of steam to the purposes of machinery may be almost considered to be as great a revolution in the arts of life, as the invention of gunpowder and of printing. May it not be said to unite the physical knowledge and practical utility of the one, with the civilizing and wide-spreading effects of the other?—TRANSLATOR.

ply, the want of the spirit of enterprise, of the industrious emulation which ought to animate the mass of citizens. But it would be a still greater service to encourage, to excite within their souls, that productive spirit, and that general emulation, that combination and that harmony of individual efforts, which at once change the face of an immense territory, in causing everywhere to spring up the prodigies of art and of civilization.

Oh! my countrymen, it is in the name of glory, so dear to all magnanimous hearts, that France herself calls you to this new contest, where illustrious and beneficent victories await you! Formerly, in the time of just defences, we quelled aggressive nations, and for an immortal vengeance, continuing the work of the Pharaohs, the Cæsars, and the Kings, we have enriched the banks of the Nile, of the Tiber, and of the Rhine, by monuments devoted to the well-being of the vanquished. Let us surpass in our works for our country, our works for foreigners. Let us learn to be great, both by and for ourselves. Do not let us leave the labour of doing all for us to the hand which governs us. Let us have to compete with it, in skill,

in vigour, and in perseverance, to triumph over the obstacles of nature, and to render them subservient to our social wants. These are conquests worthy of the most civilized of people, worthy of the ambition of the most enlightened among men: and we all can take a part in these conquests, according to the means, great or small, of our fortune or of our talents, so as to acquire a general and national honour; in the midst of which will arise reputations of which France herself will be proud.

In order to shew, by the precept of example, the immense advantages of a system of association, in which we are, as yet, only feeling our way with uncertain steps,—I do not fear to offer to your view the spectacle of an emulation which is equally serviceable to great nations and to illustrious men, in raising them above themselves, by the necessity of surpassing their rivals. Recal, then, in your minds, as a model worthy of you, noble children of France, that emulation entirely heroic, the source of the immortality of that great Athenian, whose genius was at once the honour and the safety of the very people whom you represent and revive, in its magnanimity as in its social charm; in amenity

of manners, in atticism of wit, and in the love of glory. Unceasingly, O Themistocles! an internal voice troubled your sleep and deprived you of rest, in recalling to you the trophies of Miltiades, up to the instant in which you had surpassed him by still nobler triumphs! Oh! that my feeble voice could acquire that importunity to awaken and excite my country, as long as she shall not have surpassed all the works of her indefatigable rival!

Let us beware of supposing, even for a single instant, that these victories are impossible to our perseverance. I have just proved, that as much as England is in advance of us now, so much, fifty years back, were we in advance of England; both in undertaking and in executing great works useful to industry and indispensable to commerce. What she has done in the course of half a century, we can do, more rapidly still. We can regain her rank, in profiting by her experience, as she profited by our's. Neither ardour nor activity, neither science nor genius, are wanting to our fortunate country. Our territory is more extensive, our climate is finer, our soil more fertile. An immense frontier, and [illegible] seas,

open their outlets to the products of the bowels and of the surface of our earth; but we still need, to reach those limits, internal communications sufficiently numerous, sufficiently easy, and sufficiently cheap. Let us learn to undertake them, with the combined efforts, and the common sacrifices, of a large number of citizens. I repeat it again, for the last time; in devoting ourselves to these labours of association, we shall cement the alliance of all classes of the state, and of all the individuals of each class; and we shall advance, by the same step, to the aggrandizement of the physical force, to the confirmation of the moral power, of our country.

Let us endeavour to reach the end, before the termination of our career. The men of our generation, according to the ordinary course of human casualties, have yet some years to live. May Heaven grant, that at the end of their days, they may be able to say to the generation which will replace them—"We received from our fathers a France, impoverished, agitated, torn;—receive from us a France covered with monuments of public utility, erected by our labours; exuberant in wealth, the product of our industry;—more

rich still in virtues, in concord, in magnanimity. Transmit to your descendants this inheritance,—aggrandized by you, as it has been by us; and may, from age to age, all the nations of the earth, enlightened by our knowledge, enriched by our industry, ameliorated by our examples, repeat for France that wish which a great man, when dying, breathed for his own country—*Esto perpetua!* May she be immortal!

THE

COMMERCIAL POWER

OF

GREAT BRITAIN.

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GREAT BRITAIN.

PUBLIC WAYS,

BOOK I.—LAWS RELATIVE TO ROADS AND WAYS.

CHAPTER I.—*Of Streets and Throughfares in the Interior of Towns.*

WE shall devote this chapter to the legislativ[e] measures adopted for ensuring by regulations and establishments, health, safety, convenience, and freedom of communication in the interior of the towns of Great Britain.

As soon as one of these towns becomes sufficiently opulent to defray the expenses of a regular system of paving, application is made to Parliament for a law to regulate the details of this important branch of public service. Permission is granted, 1st, for the town to tax itself to defray the expenses of paving, lighting, *&c.*; 2dly, for the election of comm[issione]rs to collect and employ the funds destin[ed to these pur]poses, as well as to preserve

order in all that concerns the streets and thoroughfares.

In 1817, an act of parliament was passed (57th Geo. III., ch. 29), which comprised all the various measures previously adopted, and the efficacy of which had been proved by experience. This act now determines the regulations of the streets in the Capital of the British Empire. If we carefully examine the principal provisions and the spirit of this act, it will be found to suggest many important improvements with respect to the convenience, safety, and cleanliness of the streets and roads.

The officers appointed by the Lord Mayor and [A]ldermen to secure these valuable advantages to [th]e inhabitants of London, are known by the title [o]f *Commissioners of Paving* and *Commissioners of* [S]*ewers**. Both, however, form frequently one and the same commission.

Parliament having authorized the collection of the funds necessary for defraying the expense of paving, the commissioners levy on every house and shop,

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* The power of appointing these commissioners is vested in the corporation of the city of London by the 19th C. II, c. 3, s. 22; but of course their authority is restricted within the limits of the city, which forms a small part only of the metropolis. Westminster, and the numerous other parishes within the bills of mortality, over the whole of which the 57th Geo. III. extends, are under the jurisdiction of local commissioners, trustees, vestries, and other authorities invested with the superintendence of the pavements, sewers, &c. The Act was intended to [illegible] duties and enlarge the powers of these function[illegible]

and all places destined for the habitation of men or animals, a tax* proportionate to the value of the building; which value is already officially determined by the amount of the poor-rates.

The legislature conceived that it would be unjust to require the inhabitants in the vicinity of any public building to defray the expenses of paving round that building. The commissioners of paving are consequently authorized to levy on the churches, hospitals, national schools, *&c.*, a tax proportionate to the superficies of the surrounding public thoroughfare †.

In some countries, far from contributing to defray the expense of keeping the roads and streets in pr[illegible] per condition, the officers of the church scruple not to obstruct and encroach upon the public thoroughfare. In Italy, and in other parts of Europe, I have always been astonished to see those monuments of

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* Even the houses occupied by ambassadors are subject to this tax, which is paid by the owners. The landlord of an uninhabited house pays only one half of the tax. The commissioners of paving are authorized to reduce and even to remit the tax entirely to those individuals who plead poverty as the ground of their exemption from paying it. But those who refuse to pay the paving rate without assigning a valid excuse, are summoned before a justice of the peace.

† The tax amounts to one shilling for each square yard of foot carriage-way, and other pavements, over half the width of the street or public place round the edifice, or the areas or grounds in front of [illegible] belonging thereto. This tax is paid by cathedrals chur[illegible] [illegible]risons, and by the proprietors of unoccupied [illegible] public road.

religion which the traveller admires for the grandeur and beauty of their architecture, surrounded on all sides by wretched stalls and sheds fixed up against the external walls. Thus, for the sake of a paltry emolument, edifices whose dignity should exempt them from all contact with profane habitations, are vilely disfigured. The ancients knew better how to respect the structures which they devoted to their deities. The stalls of Rome, the shops of Athens, and the tabernæ of Memphis and Thebes, were not raised upon the very foundations of the temples of Minerva, Jupiter, Osiris, and Isis. In the promised land, the hand which drove away the "buyers and sellers" who presumed to profane the sanctuary, doubtless spared not the retailers of the peristile, or the stall-keepers of the portico.

In England, it is the business of civil officers strictly to keep the exterior of churches free from nuisance. If the officers of a church, or the chapter of a cathedral, should encroach upon the streets or places surrounding a religious edifice, for the sake of letting any stall or tenement which they may have erected against the building, the municipal officers would, upon their own authority, remove all such nuisances, and fine the usurpers of the public thoroughfare.

It is also the duty of the municipal authority to see that the civil edifices, such as the houses of Parliament, the King's palace, *&c.*, are kept free from all encroachments of the ki[illegible]ed.

In France, nothing but the storms of the revolution could succeed in extirpating, from the vicinity of our palaces, those excrescences of misery, which were so long favoured by the cupidity of inferior officers. But now that tranquillity prevails around these structures, we again see this parasite vegetation peeping forth on the spots where it formerly took root and spread without hinderance.

In England, regulations as effective are adopted for rendering the thoroughfares free, convenient, and safe in front of *private* houses, as around *public* buildings. No bulky article is suffered to be exposed on the outsides of shops; any stationary object obstructing the public path is equally obnoxious. They are liable to be seized by any surveyor or other person appointed by the commissioners of the pavements, or trustees; and the owner is subject to the penalty of 40*s.* for the first offence, and for the second and every subsequent offence, any sum not exceeding 5*l.* These measures denote the foresight of a people, who are fully aware of the importance of facility of communication, for the preservation of social order as well as for the prosperity of trade*.

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* We will here describe at length the legislative measures of which we have merely pointed out the general spirit. It is unlawful to place on the outsides of shops, and in the public thoroughfare, any stall, block, basket, cask, or any merchandise whatever; to su[illegible] ...sh in the street, barrels or vessels of any ki[illegible] ...e public streets, trucks, wheelbar-

In passing along the most busy streets in the French capital, such as the Rue de Saint Denis, the Rue de Saint Martin, and the Rue des Lombards, which are considerably too narrow to admit of active traffic, it will be found that at least one third of their width is occupied by projecting stalls, by boxes and barrels placed on the outsides of the shops; and by waggons depositing their contents in the streets, instead of immediately conveying them into the warehouses, which would be both economical and easy. These details, which are so much neglected in France, can only be effectually regulated by a pow-

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rows, or vehicles of any description (except hackney coaches), longer than the time requisite for loading or unloading. Any one who transgresses these regulations may be summoned before a justice of the peace; and, on the testimony of one or several witnesses, he is fined from 2*l*. to 5*l*., which fine goes to the benefit of the funds for paving. The officers of the commissioners of paving (inspectors) are authorized to seize any object exhibited on the outsides of the shops, and any vehicles stopping unlawfully in the public thoroughfare. If, among the objects seized, there should be any of a nature that will not permit of their being kept, they are immediately forfeited and delivered to the overseers of the parish, or the governor of some prison situated in the parish. If, within five days after the seizure of preservable articles, the offenders do not reclaim them on payment of the fine, they are sold by auction, and the fine and the expenses being deducted from the produce of the sale, the surplus is paid to the owner. On a repetition of the offence, it is not necessary to wait for the decision of a justice of the peace. Any articles, vehicles, or animals, that may obstruct the public thoroughfare, are immediately seized and sold without [illegible], if the offender do not recover them on paymen[illegible] ex-penses.

erfully-organized system of municipal police, like that which exists in England.

The care taken in the towns, and particularly in the metropolis of Great Britain, to render the public thoroughfares convenient to foot passengers, is particularly remarkable. It is an admirable fact, that in a country where the rich alone are the framers of the laws, the comforts of the poorer classes of the citizens are never forgotten in enactments, which, like these regulations, have regard to the public convenience.

Footpaths paved with large flag stones run along both sides of all the streets of ordinary width : e[ven] in the narrowest streets, the foot pavement is su[ffi]ciently wide to enable two persons to pass each other. Heavy fines are exacted from any individual who may drive a horse, a coach, a cart, or even a wheelbarrow, or roll boxes or casks on the foot pavement.

The following detail of the measures for securing *the safety* of public thoroughfares merits particular attention :—

The commissioners of paving fix up posts of wood, stone, or iron, along such parts of the foot pavements as they think necessary, and erect palings round unoccupied grounds, or dangerous places. Any damage committed upon these barriers subjects the offenders to a fine of from 2*l.* to 10*l.*, independently of the expense of repairs. In the principal streets there is in front of the houses an area, confined by an iron or wooden railing. From this area one may descend to the ki[tchen or ce]llar of the house, either by means of steps or a tra[p] ... to the area be not kept carefully and

securely shut, the householder is subject to a fine of from 2*l.* to 5*l.* If the owners of the houses refuse to keep the gates and trap-doors of their areas in good condition, the commissioners of paving may order them to be repaired at the expense of the offenders. The commissioners are authorized to remove pent-houses, signs, and all projecting objects which may obstruct the public thoroughfare, or impede the free circulation of air and light. They are empowered to direct the course of the kennels in such a way as may be best calculated to ensure the cleanliness of the streets, and the convenience of passengers. It is unlawful to spread out or slake lime in the streets, except with the permission of the commissioners of paving, and in a spot enclosed by a barrier. As soon as any part of a street is unpaved for the purpose of making an excavation, posts and palings are fixed up, and lanterns and watchmen are stationed on the spot during the night, to prevent the occurrence of any accident to foot passengers, horses, carriages, &c. These precautions must be adopted within three hours after the communication made by the commissioners of paving to the companies who undertake the excavation, under pain of a fine of 5*l.* If, by the bursting of any drain, or pipe, the pavement sinks and becomes dangerous, the inspector of the pavement fixes up palings round the damaged part, until the repairs are completed. The expense is defrayed by the company whose works may have occasioned the damage.

We will next consider the regulations respecting *cleanliness*, on which the health of the community depends.

The sewers, which are constructed at the expense of the town, pass through the principal streets, and receive, by branch-pipes fixed at the expense of the owner of each house, all that can be carried off by water through these channels. The superintendence of the sewers is, in certai[illegible] [illegible]d to

special commissioners *. See *Management of Water Conveyance,* Book II. chap. 1.

In England, it is unlawful to deposit any kind of filth, or even sweepings in the streets. They are kept within each house, and are removed, at leas once every week, by the public contractors †. Thus

* The gratings which are placed over the drains, on a level with the pavement, are executed at the expense of this special commission, in conformity with directions and dimensions given by the paving commissioners. If the latter should think it necessary to construct new drains or gratings, they do so at thei own expense; and afterwards consign them to the commissione of sewers, whose business it is to keep them in order. Final whenever the commissioners of paving conceive that a cess-p a gutter, or a kennel running below or above ground, and municating with the comm sewer, stands in need of clean or repairing, they order the owner to execute what is necessar If such repairs be not commenced and finished within three da when such is practicable, according to the conditions laid do by the commissioners, the latter direct the work to be execute at the expense of the individual.

† For this purpose the commissioners of paving are empowered to contract, by bidding, with the scavengers and dustmen. Once every week the contractors are bound to send round their carts to remove the rubbish, ashes, dust, mud, *&c.*, collected in every house, under pain of forfeiting 40*s.* on every instance of neglect. Any householder who fails in the observance of this regulation is liable to be fined 5*l.* Where building or repairs are carrying on, the owner of the house must himself remove rubbish of every kind, within twenty-four hours after it is deposited in the street. If any individual, except those employed by the contractors, should remove the dust and dirt from the houses, his cart and horses are seized, and he is fined 10*l.* for the first offence, 15*l.* for the s nd 20*l.* for every succeeding one; one half of the fine g and the other half to the contractor. If the

the streets of the English towns nowhere present the disgusting aspect of the towns in the south of Europe, where dirt, and human and animal excrements, are thrown into the public streets, and consigned to the putrefaction which warm climates accelerate, and which gives rise to fatal endemic diseases.

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objects seized, and the property of the offender be not equivalent to the amount of the fine, he may be imprisoned, and sentenced to hard labour for thirty days. If the contractor suffer more than seven days to elapse without removing the dust from a house, the inhabitant, four-and-twenty hours after having given notice for its removal, has a right to sell the dust, and get it carried away by any one he may choose to employ for that purpose, before ten in the morning. Each householder is required to sweep the pavement before his door during frost and thaw, once every day, Sundays excepted, under pain of being fined 10*s*.

The nightmen are permitted to employ their carts only from midnight till five in the morning in summer, and till six in winter. The watchmen are ordered to seize all carts which may be found transgressing these regulations. An offender taken in the fact may be imprisoned for thirty days, and the person employing him thus unlawfully, may be sentenced to pay a fine of 5*l*. If the watchmen neglect to seize night-carts that may be found in the streets at prohibited hours, any individual is at liberty to do so, and the informer receives half the amount of the fine as his reward.

Carts which are employed in conveying oils, soap lees, ammoniacal liquid, mud, foul water, &c., must have their sides raised up, so that nothing may be spilled in the streets by the jolting of the vehicle. The non-observance of this regulation subjects the owner of the cart to a penalty of 5*l*.

Any individual who beats a carpet, throws dirt, dust, &c., into the street, kills animals in the public thoroughfare, or so near as to occasion their blood to run into the street, is liable to be amerced; and the informer receives one-half of the fine [illegible] from 2*l*. to 5*l*.; according to circumstances,

These disorders, though less dangerous in the climate of Great Britain, sometimes occasioned great ravages even in London, before the adoption of those regulations for cleanliness, which now render the British metropolis one of the capitals of Europe in which the average duration of human life is longest. In the populous towns of Ireland, on the contrary, and in those quarters of the towns of England and Scotland which are inhabited by the Irish, the lower classes of whom are horribly dirty, the typhus (which is analagous to the prison fever,) occasionally produces a mortality no less lastin[illegible] and extensive than that which attends the plague [illegible] Constantinople. Even in the depth of winter [illegible] typhus fever is sometimes attended by the [illegible] fatal effects.

During the heat of summer, the copious wate[illegible] ing of the streets, materially contributes to th[illegible] preservation of the public health. Sc[illegible]es the streets are watered as in France, by carts, but more frequently by pipes which rise to the level of the pavement, and communicate with the subterraneous pipes by which the inhabitants are supplied with water*. Portable leathern tubes are affixed to the orifices of the branching pipes, and being terminated

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* It is the business of the commissioners of paving to superintend the watering of the streets. They are consequently empow[illegible]ct with the manufacturers of pipes, the drivers of [illegible]

either by a spout or a rose, they are used to disperse the water over every part of the public thoroughfare.

The expense of watering is defrayed by the inhabitants of each street; but it is requisite that three fourths of them should make an application to get the street watered. The tax levied for this purpose on all the inhabitants of the street must not exceed the fortieth part of the rent of the houses.

The advantages derived from an excellent system of street police would be of little importance, were [illegible] measures adopted for keeping the streets and [illegible]oughfares in perfect repair. To effect this [illegible], th[illegible] grants to householders a right of in[illegible]tion*, and even of enforcement. The inspector

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* If a householder paying 50*l.* poor rates, or two householders each paying one half of that sum, conceive that any part of the street pa[illegible] is in such a state as to be dangerous to foot passengers or carriages, they are authorized to apply to get it repaired. The application must be addressed to the inspector, whose place of residence is described on a board, as we shall soon have occasion to notice.

The inspector immediately visits the places that may have been pointed out to him. If he should estimate that the necessary repairs would not cost more than 2*l.*, he must order them to be executed within three days after receiving the notification, and within seven days after it if the expense of the repairs would be from 2*l.* to 10*l.* If the repairs should exceed the cost of 10*l.* the inspector must address to the clerk of the commissioners a copy of the summons which he has received, in order that the clerk may call a general meeting of the commissioners. Two days are allowed for convening the meeting, and four days f[illegible] it, making in all six days. If the meeting of co[illegible]

of paving is cited before the magistrates, if he refuse to conform to the legal demand made by one or several householders, for the immediate repair of the street, in places which are in such a state as to prevent secure and free traffic; he is fined if he be in the wrong; but if he can justify himself the fine is paid by his accuser.

Such is the salutary influence, such is the power of exercising judicial functions, which we should wish to see granted to every French citizen. It is not calculated to endanger supreme authority, while it is in the highest degree advantageous for the general prosperity and the welfare of the publi[c]. Let us hope to see this wish fulfilled.

The inspectors who have just been mentio[ned]

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ledge the necessity of the repairs demanded, they must be execute[d] in the twenty-eight days succeeding, if the expense do not exceed 50*l.*; and in forty-eight days if the expense exceed that sum.

If the repairs be not executed at the periods thus prescribed, reckoning from the day on which the application is made by the householders, they may summon the inspector before the justices of the peace, to account for his delay. If he cannot do this satisfactorily, or if he neglect to appear, he is condemned to defray the expenses of summoning and notices. He is then directed to execute the requisite repairs, and a period proportionate to the expense is again granted. If the application of the householders be not well founded, they pay a fine of 40*s.* to the inspector.

If the inspector exceed, without valid ground, the time granted by the justices of the peace for the requisite repairs, he must pay, for the benefit of the poor's rate of the parish, a fine not exceeding 10*l.*, 20*l.* or 30*l.*, for the first, second and third transgressions. *On [...] inspector is deprived of his functions, and is d[...] charging them at any time or in any parish.*

are the individuals who execute the repairs, *&c.*, of the public streets. They are paid either by an annual salary, or by a remuneration proportionate to the work performed. They may be dismissed at the will of the paving commissioners *.

As companies for the conveyance of gas are now being established in France, it will doubtless be interesting to know the regulations to which companies of the same kind are subject in England, with the view of preserving, in the utmost degree, the liberty, safety, and cleanliness of the public streets †.

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* The office of inspector can be filled only by a householder, or who exercises some duties in the parish. He must not be a commissioner of paving, a paviour, a mason, a dealer in stone, or interested in any way in the contracts for paving. Every infraction of these regulations is punished by a fine of 20*l.*

As the inspector must have frequent official communication with the citizens, his name, christian names, and place of abode, are painted in large characters on a board, which is fixed up in one of the most public situations of the parish, of which he superintends the paving.

† These regulations are as follows:—The inspector must maintain continual communication with the gas and water companies. For this reason, within seven days after the nomination of the inspector, his appointment is notified by the secretary of the commissioners of paving to all the different companies whose pipes run through any of the streets of the parish to which the new inspector belongs. A similar notification is addressed to the commissioners of sewers, whose jurisdiction extends over the same parish.

A regulation dictated by the same motives enjoins that the secretaries, inspectors, and turn-cocks of the gas or water companies, shall within five days after their nomination [illegible] their places of abode to the inspectors of pa[illegible]

We will now explain the functions of the commissioners of paving, as they relate to their labours and their responsibility.

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sected by the water or gas pipes belonging to these companies, under pain of being fined 10*l.*

The gas and water companies must keep in their offices detailed plans of the course of their pipes. They must permit the commissioners and the inspector of paving, or their officers, to refer to their plans, and to take copies of them whenever such may be necessary.

The gas and water companies, and the commissioners of sewers, cannot take up any part of the pavement, except for the purpose of changing the direction of the pipes, and stop-cocks or plugs, or repairing them; substituting iron for wooden pipes, repairing or clearing the sewers, pipes, *&c.*, unless they give notice three da[ys] previously by a paper signed by their secretary, their inspector, [or] their turn-cock, and specifying the street and the particular spot to be unpaved. The commissioners of paving must then grant the required permission. Within twelve hours after the unpaving of the street commences, notice must be given to the inspector. If any one of these formalities be neglected, the offender must pay to the paving commissioners the sum of 40*s.* for every square foot of pavement which shall be so broken or taken up without such previous notice or consent.

Whenever an inspector of paving discovers that a pipe, a turn-cock, or any other part of the works belonging to the gas or water companies, or to the commissioners of sewers, is broken or damaged, he immediately forwards a written notification of the circumstance to the company. Within forty-eight hours after this notification, the company must unpave the spot pointed out, repair the damaged parts of their works, and cover in the pipes or sewers with good materials well cemented together. Within twelve hours after these works are finished, notice of their completion must be given to the inspector of paving. All these regulations must be observed under pain of fines.

It ha[...] pipes belonging to different companies run throu[...]eet; if, therefore, the inspector should

When it is proposed to open new streets *, or to enlarge or improve old ones, the commissioners purchase, by private agreement, the ground requisite for the projected alterations or improvements. If they cannot come to an arrangement respecting the purchase with the owner, they convoke a special jury. (stat. 3, Geo. 1., c. 25 †.) The expenses of the valuation are defrayed by the party, public or

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mistake the company to which he supposed the damaged pipe to belong, the expenses of unpaving and digging are defrayed by the company whose works require repair.

The commissioners of paving are authorized to fix the period to be employed by the gas or water companies in the execution of any work, and the removal of the rubbish.

The companies merely confine themselves to laying down and working the earth over their pipes. It is the business of the paving contractor to replace the pavement, and the sand or gravel necessary for keeping the stones together. For the space of three months after this, the works which are occasionally found necessary in consequence of the removal of the earth, must be executed at the charge of the company, by whom the street was dug up.

If the necessary works for the repair of pipes are not executed, and the useless materials removed from the vicinity of the spot unpaved or dug up, within the prescribed period, by the companies who have undertaken them, the inspector of paving completes the works and removes the rubbish at the expense of the companies, who are moreover fined for their negligence.

* If the pavement in any new street is not laid down, or is in an unfinished state, the commissioners may, if they think fit, order the owners of the houses on either side of the street, to lay down the foot and horse pavement, over half the width of the public thoroughfare, fronting each house.

† The Act for the better regulation [illegible]

private, whose demands might happen to be the most remote from the estimates of the jury.

That the inhabitants may not be at once charged with too heavy a burden of taxes, the commissioners of paving are authorized to borrow the sums necessary for carrying on the works of the streets and public thoroughfares*. The current interest, and the gradual reimbursement of the loan, are charged upon the taxes levied for defraying the expenses of the works.

For the management and despatch of business, the commissioners of paving are required to hold a general meeting at least once every month: at the[illegible] meetings all the contracts are concluded, after h[illegible]ing been announced seven days previously in [illegible] public papers.

To form a meeting there must be at least fiv[illegible] members present †. A new president is chosen at every meeting, and nothing is decided except by a

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* For this purpose the commissioners sign bonds of 100*l.*, bearing 5*l.* interest. Their treasurer sells these bonds to the highest bidder; they are transferable from one individual to another at the will of the purchaser, and are payable at the will of the commissioners.

Any individual upwards of thirty-five years of age may purchase a life annuity, secured on the paving funds. These life annuities are, like others, sold to the highest bidder. The sales are announced in the London Gazette a week before they ta[illegible]e place.

† In cases in which the law does not specify the number of commissi[illegible]isite for the execution of any act, the presence of tw[illegible]ficient.

majority of votes. Their measures and deliberations are registered in the minutes of the meetings, and are received as evidence in courts of law.

The commissioners are authorized to hire places for holding their meetings, establishing their offices, *&c.*, as well as an enclosure called the *Green Yard*, for the reception of all objects seized, in violating the regulations of the streets and thoroughfares. To this Green Yard are conveyed horses and cattle of every description found without drivers in the public streets, carts, coaches, *&c.*, and objects of every kind lawfully seized. The commissioners termine the ransom to be paid by the owners for recovery of any property deposited in the Green ard.

An individual obstructing the commissioners in he exercise of their functions, in any way whatever, incurs a penalty of *5l.* for the first offence, *10l.* for the second, and *20l.* for every succeeding one.

The justices of the peace may compel witnesses of every description to appear before them, to give evidence in cases respecting the street regulations. The prosecutor, who gives evidence on oath, is considered as a witness. Any individual giving false testimony on oath, in these cases, is punishable for perjury. The commissioners and justices of the peace are authorized, in all instances, to give one half of the fine to the prosecutor.

Persons condemned by a justice of the peace may appeal to the quarter se[illegible] nses

of the appeal are always defrayed by the party, public or private, condemned in the last instance.

The commissioners of paving appoint or dismiss their secretary at pleasure. It is the business of this secretary to institute, in the name of the commissioners, all prosecutions for offences against the street laws. The treasurer, collectors of taxes, *&c.*, are required to give a considerable security. If any of those individuals should receive the smallest bribe from a householder or a contractor, he is liable to a fine of 20*l.* Any officer of the commissioners who takes an interest direct or indirect in a paving contract, is dismissed from his situation, and be-comes incapable of ever again discharging sim[ilar] functions in the public service.

CHAPTER II.

Legislation of Open Roads.

The system of management relative to open roads, which has long been established in England, is, in many of its parts, a model worthy of imitation. This management, which is merely parochial, is in itself a complete government, exhibiting the repre-sentative, executive, and judicial powers, perfectly distinct from each other, in their attributes as well as in their operations.

In 1773 an act was passed in the British Parliament, which comprised within itself all the regulations established by previous statutes or by customs observed from time immemorial. This act, like most of the laws that have emanated from the same authority, is remarkable for the wisdom of its fundamental arrangements, and for the multiplicity of the precautions adopted to provide for every important case, to obviate, in the application of the law, all uncertainty, and consequently all arbitrary decision, and to remove every pretence for the hesitations and subterfuges, to which the most subtle and tortuous minds might be inclined to resort. But inexplicable defects materially detract from these valuable qualities which, in general, charact[illegible] of the

British parliament. Incoherence and confusion prevail in the arrangement of the articles. Tedious prolixity* and endless repetition disfigure the noblest monuments of the wisdom and experience of a great legislative body. We will, however, endeavour to analyze, briefly, and in due order, the essential provisions of the laws relative to roads.

In England each parish forms the first political

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* The act relative to parish roads (13th Geo. III. chap. 78) would in itself alone occupy one hundred pages of this volume; and the act relative to turnpike roads (13th Geo. III. chap. 8,) would occupy upwards of sixty, if they were to be quoted literally. Since the passing of the two above-mentioned acts, upwards of twenty others have been introduced. The following is a list of the most remarkable:—13th Geo. III. ch. 78, 84.—14th Geo. III. chap. 14, 36, 57, 82.—16th Geo. III. ch. 39, 44.—17th Geo. III. ch. 16.—18th Geo. III ch. 28, 63.—21st Geo. III. ch. 20.—25th Geo. III. ch. 57.—34th Geo. III. ch. 74.—44th Geo. III. ch. 5—55th Geo. III. ch. 68. I have carefully examined the articles of the subsequent acts, by which the provisions of the former ones have been modified or revoked (*a*).

(*a*) The list of statutes given by the author is by no means complete, though it may afford some idea of the extreme anxiety of the legislature to improve and preserve the public roads throughout the kingdom. The same zeal combined with more competent knowledge, has produced in the present reign two acts to explain, amend, and consolidate the general laws for regulating turnpike roads, *viz.*, the 3d Geo. IV., c. 126, and 4th Geo. IV., c. 95. These statutes are of great length, and contain the most ample provisions on the subject, with a nicety of detail which would seem calculated to meet every possible contingency. A similar act, (*viz.*, 4th Geo IV., c. 49,) has been passed for Scotland, so that the roads throughout the whole of Great Britain are now under a system of management, which being founded on many years experience, aided by vigilant inquiry and scientific research, must, if duly administ[illegible] to this country the most perfect roads in the world. Tr[illegible]

unit of the social aggregate. It has its own government; and provides for the maintenance of its poor, its church, and its roads. Every parish holds general meetings* composed of municipal officers, householders, and tenants paying taxes, to determine its local expenses, and to take cognizance of the conduct of its responsible officers. Every year ten candidates are chosen, from among whom the judicial power elects a surveyor of the roads of the parish †. This surveyor manages all the executive part of the business; the receipts, the expenditure,

* When a parish meeting is to be held, for the purpose of car- into execution the measures prescribed by the road act, the day, the hour, and the place of the meeting must be published at east three days previously. The meeting is usually held within the bounds of the parish to which it relates.

† The formalities of election are thus prescribed by act of Parliament. The annual meeting for the nomination of the ten candidates for the situation of surveyor, is held on the 2d of September (a). The candidates must be inhabitants of the parish, possessing property or income to the annual amount of 100*l.* or occupiers of houses, lands, &c. of the yearly value of 30*l.* Three days after the meeting takes place, the constable or headborough of the parish transmits to one of the justices of the peace of the county, a duplicate of the list of the candidates. The original list is presented by the same officer at the special quarter sessions of the justices of the peace held in the first week of October. These justices of the peace then appoint one or more surveyor of roads for each parish, according to the peculiarities of the local situation. If ten persons cannot be found within the parish, to fulfil the required conditions,

(a) If this happens to be on a Sunday, the meet[illegible] held on the Monday.—*Translator*.

the works, all are under his control, and his personal responsibility.

The judicial municipal power, which consists of all the justices of the peace in the county, exercises a high and permanent inspection and authority over the management and police of the roads, and enforces the observance of the measures prescribed on this subject by the legislature.

When a justice of the peace meets with a case which he cannot of himself decide, he calls conjointly with one of his colleagues, a special session of justices of the peace, in order to deliberate on the means of carrying the law into effect, either by administrative or judicial measures, according to the nature of circumstances.

We will carefully examine the method adopted in the election of the surveyor of the roads, and the functions he has to perform. The surveyor of roads

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those who are best qualified are appointed, in order to complete the list of candidates. If the candidates presented do not appear capable of executing the duties allotted to them, the justices of the peace *have a right to choose* from among the most respectable house and lease holders of the parish who are not included in the list. On the death of a surveyor, the justices of the peace appoint another *ad interim*, until the period of the election comes round. In certain cases the law requires that the justices of the peace should appoint deputy surveyors, who are chosen from among the respectable inhabitants of the parish. They receive no salary, if they are chosen at once, but a salary is allowed them if they are chosen on the refusal of other persons. Any individual who de- [illegible] ... fined 50 shillings,

is, in England, analogous to the Ædile of the Romans. The office is gratuitous; its reward consists in the esteem and gratitude of the citizens. The law provides the means of exemption to the candidate chosen for the place of surveyor, if he can adduce valid reasons for not serving*. He who neglects to appear at the session of the justices of the peace, after the time of the elections, and he who within six days subsequently to his election neglects to make known whether he refuses or accepts the situation, subjects himself to a fine of *5l.*

That the same duties may not always devolve on e same individuals, one year's service as a sur r is a ground of exemption from re-election for pace of three years.

When any one declines accepting the office of rveyor, the justices of the peace choose another to l the place, and they may grant him a salary payable out of the fines and the rates collected for the maintenance of the roads†. If more than two thirds

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* According to the terms of the law, within the three days succeeding the nomination of the candidates by the parish meeting, the constable, &c. of the parish must give them notice that they have to appear at the special meeting of the justices of the peace, to accept the situation of surveyor, if they should be elected; or to make known their grounds of exemption, if they have any to bring forward.

† This salary must never be more than the eighth of a rate, which, in its total amount, must not exceed the fortieth part of the rental of the parish.

of the parish meeting agree to choose a professional man as surveyor of the roads, and vote to him a salary proportionate to his duties, then to the list of the ten gratuitous candidates is added the name of the candidate to be remunerated. If the justices of the peace prefer him to his competitors, he is appointed to the situation of surveyor, and he receives the salary offered by the parish. The justices can never grant a salary exceeding that offered by the inhabitants; for it is a natural and inalienable right of English citizens, to be taxed only by themselves, or by their representatives in Parliament. It is extremely important that this principle, which i[s] essential to good parochial administration, sh[ould] be adopted with us as an invariable rule, in all ca[ses] relating to the fixing of local expenses and granting salaries for municipal services. The same principle should likewise be extended in France, with an equal degree of precision to the pecuniary management of *communes des arrondissemens et des departements.*

It will be seen that there are, in Great Britain, two distinct classes of road surveyors,—some exercising their functions gratuitously, and others with a salary. These latter are men better versed in the knowledge of the works they have to execute; and the parishes are entitled to exact more regular service from them. They are bound to provide a security, acknowledged by the justices of the peace to be sufficient, for the sums paid into their hands.

[illegible] surveyors are inspired with a con-

sciousness of the honour which belongs to the fulfilment of the gratuitous functions assigned to them by the suffrage of their fellow-citizens, for the interest of the community. This feeling often dictates greater sacrifices, and prompts to more laborious and devoted exertions, than can be excited even by the attraction of a salary.

The works published in England relative to the construction and maintenance of roads, being written by professional surveyors, serve to shew the disadvantages of every kind arising out of the choice of gratuitous surveyors from the mass of the citizens. But we must not allow ourselves to be prejudiced [by] this circumstance. However, when the English [can]not find gratuitous surveyors, who combine intelligence with zeal and experience, I conceive they act wisely in appointing paid inspectors, who are well acquainted with every thing relating to the formation and preservation of the public roads.

We have the good fortune to possess that which is ardently wished for by all enlightened men in Great Britain; namely, a numerous corps of civil engineers, disseminated over every point of our territory,—a body of conscientious men, formed by superior study and experience.

It would be rendering a signal service to France, to derive from this important body all the advantages which their information qualifies them to afford. For this purpose it would be sufficient to identify the members of the corps of civil en[gineers] [wit]h the

local interests, and the municipal authority. I may be permitted to make, in anticipation, a few remarks on a subject so worthy the consideration of our legislators and statesmen. I do not pretend to lay down a perfect plan;—but to draw the attention of superior minds to this important object is at least rendering some service.

For the direction of the civil works of each *arrondissement*, consisting of one or two sub-prefectures, it would be requisite:

1st. That an accomptant should have the charge of the funds, keep the accounts of the receipts and expenses, superintend the financial part of the contracts, the payment of salaries, supplies, *&c.* This person, who should not be permitted to do any thing on his own responsibility, should act only in conformity with the le[illegible] and *always written* orders issued by the officer of the public w[illegible] The latter would thus be relieved from a multitude of tires[illegible] details.

2ndly. An engineer should be exclusively intrusted with al[illegible] civil works. He should enjoy the rank of our ordinary engineers of bridges and highways. He should be chosen from among the disposable officers of this rank, and from the candidates (*aspirants engénieurs*) declared to be eligible after a public examination * of their knowledge theoretical and practical acquired at the Polytechnic School, and at the school of bridges and highways.

I would suggest that the choice of the engineer of any particular arrondissement † should belong to respectable inhabitants of that

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* The official report of these examinations should be printed and sent to the different arrondissements, to guide the choice of the electors.

† It is well known that France is now divided into 83 departments. Each department is sub-divided into four or five arrondisse[illegible]

arrondissement: for example, to citizens holding the rank of electors, or (if this class should not be sufficiently numerous) to citizens paying taxes to the amount of 200 francs, or only 100 francs.

In order that the electors of arrondissements might make choice only of persons well qualified to discharge the duties allotted to them, they should be obliged to make their election from a list of twenty candidates, furnished by the directors-general of bridges and highways.

Every two or three years, the engineer should be subject to the examination of the electors of the arrondissement. He should have the right of retaining his place of residence, so long as he might not be opposed by *two thirds* of the votes. This would be a means of giving sufficient stability to his employment; and it would also serve continually to warn him, that if by weakness, unlawful connivance, incapacity, or neglect of duty, he should give dissatisfaction to the majority of the inhabitants, he would be officially sent out of the arrondissement; a disgrace which would render it very difficult for him to gain a situation in any other district.

In extensive arrondissements, and in those in which extraordinary works are necessary, the directors-general of bridges and highways should send some of the scholars of the Polytechnic School, on the list of *Aspirants*, who would thus be formed under the superintendence of men of skill.

The engineers of arrondissements should receive, for all communal roads, instructions from councils of arrondissements; for departmental roads, orders from councils of departments; and finally, for general roads, orders from the inspectors-general of roads and bridges. In these two last mentioned cases, the engineer-in-chief of the department should be the indispensable intermediary between the central authority, and the more ordinary engineers.

It would be requisite to maintain on the present footing, an engineer-in-chief for each department. To this superior officer should be added an accomptant-general of the [illegible] whose

functions should be similar to those of the accomptants of each arrondissement.

The departmental engineers should be chosen from among the arrondissement engineers, out of lists of ten candidates, accompanied by testimonials of service, and presented by the directors-general of roads and bridges.

To the electoral colleges of the department should be consigned the choice of the engineer-in-chief of their particular department, and the ministry should reserve to itself the appointment of the inspector-general.

The bridge and canal companies should be free to choose, from all ranks, the most skilful and celebrated engineers who may correspond with their views, and may be willing to enter upon the duties proposed.

Thus persons interested in the good preservation and perfect support of public works of every description, would everywhere exercise immediate and continual influence over the engineers. Th[illegible] would ensure the zeal of these officers by exciting their emula[illegible] by the prospect of promotion grounded only on their merit.

The ministry might moreover possess the right of dismissing an engineer who should not fulfil his duties with due integrity, activity or intelligence; but this dismissal should not be arbitrary. It should only take place, when a jury composed, for example, of three engineers appointed by the state, three by the party assembled, and three citizens chosen by the arrondissement or department councils, should declare there is a just ground for the dismissal.

In the present state of things, an engineer may be distinguished for zeal, superior talent, great experience, and laudable activity, and yet nevertheless, if he have the misfortune to be out of favour with the central authority, he may drag out his whole life in an inferior situation. On the contrary, should he be ignorant, narrow-minded, indolent, negligent, and irregular, it is possible, if he take part in the prevailing opinions and passions of the day, that the time may come, when even the very extravagance of his conduct

will ensure his triumph over his competitors who have nothing to recommend them save intelligence, industry, and modesty. These are evils which I would, under any circumstances, render absolutely impossible.

As to the salaries of the engineers, they should consist—1st, of a fixed *minimum* which would ensure to them a competency;—2dly, of an additional allowance proportionate to the extent and duration of the works in which they have to engage. By this means activity would be rewarded; and we should not see engineers perfectly unemployed, enjoying equal salaries with others who are burdened with occupation.

The richest arrondissements and departments, offering the most considerable allowances to the officers of the public works, would attract many of the most distinguished talent, and would invite them from one end of France to the other; without regard to the recommendations of offices, saloons, or ante-chambers.

I venture to affirm that great and important changes for the preservation and maintenance of public works would be the speedy consequence of the few innovations which I would propose to be introduced, with reference to the intelligent body of the engineers of roads and bridges.

Purchase and Alienation of the Ground over which Roads pass.

The ground occupied by roads belongs to the parishes whose business is to maintain them. As the ground thus employed is lost to cultivation, all display of pomp and grandeur in the useless width of the public roads is wisely avoided.

The roads in England were formerly much narrower than they now are. The limits of their width have been prescribed by Parliament in proportion

as the advancement of trade has increased the traffic maintained upon them.

Certainly the roads of Great Britain cannot be compared to ours in respect to width. But as they are kept in the best condition from one edge to the other, they afford perfect facility for the passage of carriages, *&c.*, at the sides as well as in the middle; thus they suffice for the most active traffic of horses and carriages. Foot passengers may also walk with ease and security by means of a foot path which is usually elevated on one side of the road.

When it is requisite to enlarge or change the direction of the public roads, the justices of th[illegible] peace order the alterations to be made over t[illegible] whole extent of the ground within their jurisdicti[illegible] However, the proposed alterations must not occasion the removal of any house, or encroach upo[illegible] the ground within any enclosure, timber-yard, *&c.*

When it is legally determined to widen or to change the direction of any particular road, the surveyor of that road treats with the owners of the new ground over which the public thoroughfare, with its ditches, drains, *&c.*, is to pass. If the purchase cannot be satisfactorily agreed upon, a justice of the peace proceeds to the spots, and institutes all the necessary inquiries. On his report, the justices of the peace assembled at the special session, empannel a jury of twelve persons out of the list of the juries summoned for the session. This jur[illegible] [illegible]demnity to be paid to the owner

of the ground, taking into consideration the various local peculiarities, and the times and circumstances that may affect the value. The law prohibits the granting of an indemnity exceeding forty times the clear rental of the ground to be purchased. The sum determined by the jury* is offered to the owner of the ground. If he refuse to accept it, or if he be absent, the money is lodged in the hands of the clerk of the justice of the peace of the parish in which the ground in question may happen to be situated; from that moment the ground belongs to the state †, and becomes an integral part of the public thoroughfare.

If the estimate of the jury exceed that of the [illegible]veyor of the roads, the expense of valuation is paid out of the parish funds. If, on the contrary, the estimate of the jury do not go beyond that of

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* The sums for the purchase of this ground necessary for the improvement of a road, are raised by an assessment proportioned to the rent, which is levied on all the inhabitants paying taxes in the parish through which the road passes.

† By a curious reservation, even after this voluntary or forced cession of ground, the original proprietor is entitled to all minerals and fossils of whatever description, which may be dug out of those parts of the ground which he still possesses; and he has also the right of making excavations under the parts thus sold, without, however, damaging the road. All the vegetation that may happen to be upon the ground required for the public road, at the time of the sale, also belongs to the seller. If there happen to be any trees which the owner refuses to remove, the inspector orders them to be cut down, and laid along the [illegible] road.

the surveyor, the expense is defrayed by the owner who has refused to submit to the valuation. This is an excellent regulation. It renders appeals to the jury exceedingly rare; for the surveyor being checked by the fear of incurring a surcharge equal to the expense of valuation, and the owner being on the other hand checked by the risk of suffering a diminution of profit, equal to those expenses, both parties naturally refrain from inflexible obstinacy, and adopt a course of moderation which is mutually advantageous.

Happy is the country whose laws are so wisely ordered that they tend to prevent legal contests among the people!

If any owner of ground should conceive himself to be injured by the proceedings of a *special session* of the justices of the peace, he may appeal at the next *general session*, whose judgment is definitive.

In case of a road being carried into a new direction, wholly or in part, those portions of the old road which become useless are sold by the surveyor, with the approbation of the justices of the peace. The produce of this sale is devoted, according to the forms above explained, to the purchase of the ground that may be required in the new course of the road.

It is an invariable rule that an old part of any road cannot be alienated, unless two justices of the peace previously visit the new part, and certify that [illegible]ctly fit to supersede the old one. If

the old and new parts of the road pass over the estate of one land-owner, he acquires the right of appropriating the ground occupied by the old part of the road, as a compensation for the ground he has furnished for the new part. When a local road is declared to be useless, the justices of the peace, exercising a jurisdiction over the parish in which the road is situated, may order it to be suppressed and sold.

It is strictly enjoined that no innovation can take place in the direction of roads, unless previous intimation be given to the individuals interested. The preliminary measures of publicity are prescribed by Act of Parliament *. These measures ord to the individuals who may be aggrieved by the innovations every opportunity of asserting and enforcing t

Road Labour.

This labour devolves on property, without regard to the privileges of individuals or classes. The

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* See the act of the 55th Geo. III. c. 68. This act prescribes that in the projected suppression of any road or part of a road: 1st, that the announcement of such suppression shall be posted up on the spot over which the new road is to pass, and on the spot over which the part to be suppressed passes; 2dly, that a similar announcement shall be posted up on the doors of the church of the parish within which the projected alterations are to be made; 3dly, that the announcement shall appear in the public journals, circulated in the county, at least three times before definitive measures are adopted.

nobility, clergy, and yeomanry, take part in it in equal proportions, according to the amount of their property or incomes.

The law determines the number of days for the labour which may be annually required for the support of the public roads, and which can never be demanded for any other purpose. The surveyor of common parish roads cannot require more than six days' labour from the parish; and the surveyor of turnpike roads can demand only three.

Since the year 1794*, the surveyor has been authorized to require that their statute labour shall be substituted by money, if such should be deem[ed] most advantageous for the maintenance of the ro[ads]. The citizens also possess the right of substitut[ing] for labour an equivalent in money †. They ma[y]

* A rate has been established for all parts of the kingdom. In 1814, the legislature considering that the value of the labour of men, horses, &c., is not the same in different parts of England, abolished the general rate, the prices of which had been raised in 1804. The justices of the peace were then empowered to establish particular rates, according to the current prices of each district.

† If labour be required only from a portion of the inhabitants, lots are drawn separately, for the horses on the one part, and the labourers on the other. But if, in the succeeding year, the lots must be drawn again, the individuals who served during the preceeding year have the right of exemption (*a*). If any individual keep

(*a*) The act, in providing for the payment of money in lieu of statute duty, contemplates the possibility of such a sum being demanded of the parish for the hire of horses and labourers, as to render it expedient to demand that the st[illegible] or some part of it should be performed in kind, in which cas[illegible] the note may be adopted.—*Translator.*

thus exempt themselves from the road labour properly so called. This tax is the most just of all, since it applies to the immediate improvement of the ground occupied by the inhabitants who pay for it.

In order to render the road labour less burdensome to the agricultural classes, the law relieves them from this duty during three particular months of the year, which are determined in each parish by a general meeting of the inhabitants*; those intervals of exemption are the sowing, mowing, and harvest months.

We will now briefly explain the principal re-[illegible]lations laid down by the law in the establish-[illegible]ent and execution of road labour.

Every individual possessing a plough or heavy carts, with three [illegible]raught horses, or two horses and two oxen, or one horse and four oxen, must furnish these animals and two labourers for the road work†.

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plough horses, without carts, he must pay the inspector for every day's labour, a certain sum per horse, or he must pay according to the rental of the ground, at the pleasure of the inspector.

* It is only necessary that the surveyor of the roads which pass through the parish should receive notice a fortnight before any suspension of the statute labour.

† Persons who do not keep a team of three horses or an equal number of oxen, but only one or two draught animals with carts employed on the public roads, must furnish them for a period of labour equal to that supplied by the other taxed inhabitants, only with a man to drive each cart. Every individual who, without possessing a team, or land or houses to the [illegible] but

In case there should be a greater want of labourers than of horses, the individuals subject to the duty of road labour, must, on the requisition of the surveyor, send instead of each team, three men, fit to work, and furnished with the necessary tools; or they must pay the wages of the labourers during the days they are employed *.

Every inhabitant not less than eighteen or more than sixty years of age, who is neither an apprentice nor a servant, who is neither a land owner nor a tenant of property to the amount of 4*l.* sterling, nor the possessor of horses or carts subject to statute labour, is required by Act of Parliament to contribute personal labour, during the period in which the other inhabitants supply men and horses.

According to an Act passed in 1773, every individual who is, by the amount of his income, exempt from personal labour, an who nevertheless is not possessed of more than 50*l.* sterling, mu pay the fortieth part of his income for six days of road labo Persons possessing from 50*l.* to 100*l.* must pay double. This proportion having been found insufficient for the support of the roads that are most frequented, Parliament raised the tax to 1*s.* 9*d.* † in the pound on the income of the land owners (54 Geo. III. c. 109.) The same act, sect. 5, determines that every person bound to furnish road labour in money and not by sup-

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who may keep a post chaise, a carriage, a gig, &c., must pay to the surveyor, during the days of road labour, a sum fixed by the justices of the peace for each of his horses, or he must pay in proportion to the value of his property, at the option of the surveyor.

* In 1773 the amount of these wages was 4*s.* 6*d.*

† Any person refusing or neglecting to contribute to the statute labour, is condemned to pay a sum amounting to double the value of that labour, according to the rate fixed by the justices of the pe

plying men, horses, &c., must pay out of every pound of his income one-fiftieth part of the price fixed by the justices of the peace, for the daily hire of a cart with three horses, accompanied by two labourers *.

We will now describe the manner in which road labour is executed. The surveyor of the roads fixes, at least four days previously, the time and the place of the labour, which lasts eight hours per day. Individuals who fail in contributing to the statute labour are punishable by fines, which are employed in defraying the necessary expenses for the support of the roads. The surveyor may demand only a portion of the supply of men and horses, if he should deem it sufficient. If the drivers and labourers sent with carts and horses should not be able or willing to work as they ought, the surveyor may send them back again. The owner has then to pay the same fines as though he had refused to contribute to the road labour.

When the supply of carts, horses, &c., is insufficient for the conveyance of materials, so that it becomes necessary to pay for additional labour for the support of the roads, the surveyor must contract for this labour at a parish meeting, publicly convoked, ten days previously, by an advertisement, specifying the nature of the contracts to be concluded. Any surveyor who takes an interest direct or indirect in these contracts, is fined 10*l*.; and declared to be for ever incapable of being employed as a *fair* surveyor.

If the total amount of the supplies of men and horses, compensations in money, and fines, be not sufficient for the support of the parish roads, the justices of the peace may order a tax in

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* Land owners having a smaller income, but possessing a cart, or carriage, &c., with less than three horses, may be taxed, at the option of the surveyor, in proportion to their revenue, or in proportion to the number of horses they keep, according to a rate fixed by the justices of the peace, sect. 6, act 54 Geo. III. c. 109.

money to be levied on the inhabitants. The sums collected by fines, ... applicable to the roads, must never be paid into the public treasury. They are lodged in the hands of the surveyor to be employed in paying for the works.

Measures relative to the support of the Public Roads.

Legislative regulations of a severity proportional to the nature of the offences, secure the prevention or punishment of any injury that may be committed upon the roads by the neighbouring land owners. It is highly important that this part of the British legislation should be made known in a country like France, where so little attention and regard is paid to the public roads, by the individuals in the vicinity.

The law punishes any encroachments that may be made, by digging a ditch, planting a hedge, or fixing up a pailing within at least 15 feet from the centre of the road. It is unlawful to dig, plough, or harrow the ground occupied by the public road within the prescribed limits *.

A private individual may indict for any injury committed to the public roads. The parishes in a body generally institute those prosecutions, in which

* Any individual who may give information of an offence of this kind, receives the fine of 2*l.* which is exacted from the offender. Moreover, the expense incurred by the destruction of the hedges and palings, and the filling up of ditches, in short the repair ... damages, is chargeable on the offenders, 13 Geo. III. c. ...

they are powerfully interested, since the inhabitants of each parish have to defray the expense of maintaining the roads within their own boundaries*.

The law grants to every citizen a right of inspection over the works for keeping the public road in good condition. If any private individual justly accuse the persons intrusted with road works, of neglecting their duty, or not executing it in a satisfactory way, the justices of the peace are authorized to reward the accuser. On the contrary, if the accusation be frivolous or malignant, the accuser must pay damages to the accused. Thus the reward held out by the legislature, for encouraging private individuals to keep a watchful eye over the public interest, ensures the certainty that any palpable malversation or negligence will receive a check; while, on the other hand, the payment of a fine, and the disgrace attendant on accusation, publicly declared to be false and scandalous, prevent any wanton attacks upon the persons appointed to direct or execute the works for the maintenance of the public roads.

It is necessary to adopt special plans for drying the roads, in a country where they are made nar-

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* When the inhabitants of a parish assembled at a meeting, resolve to prosecute any one for offences of this kind, they authorize the surveyor of their roads to include in his accounts the expenses of the prosecution. The surveyor afterwards pays these expenses out of the funds that are lodged in [his] hands. 13 Geo. III. c. 78.

row, where the climate is extremely damp, and the heat of the sun seldom powerful. In England regulations are made for effecting this object. Trees and shrubs must never be planted within 15 feet of the centre of the road. If any such plantation should exist, and the trees, &c., be not cut down within ten days after the order to that effect, given by the surveyor to the owner of the ground, the latter is subject to a penalty *; and if necessary, the judicial authority interferes to compel him to clear the public thoroughfare.

It is not enough that the hedges and trees should be planted within the specified distance from the centre of the road; they must also be cut so as not to occasion too much shade, and above all not prevent the free circulation of air, for drying the ground in wet weather and sweeping off the dust in dry weather †. A land-owner refusing, on the application of the surveyor to cut his hedge-rows, as the law requires, would be compelled to do so by the authority of the justices of the peace; he would moreover have to pay a penalty proportionate to the length of the road bordered by the hedges or trees not cut in conformity with the law.

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* Except the trees be for ornament or shelter to the house, &c., of the owner thereof.—*Translator.*

† The law specifies the particular months during which the land-owners are required to cut their trees and hedges, within the jurisdi[illegible]d surveyor.

The ditches and drains that run along each side of the road, and which are necessary for keeping it as dry as possible, are made and kept in repair by the owners of the adjoining ground. They must also defray the expense of making pipes and bridges in those parts where horse and foot paths branch off from the public road into their property. If they neglect to execute the necessary repairs, they are fined 10*s.* for each offence.

The surveyor has the right of examining, whenever he pleases, the roads, causeways, bridges, pavements, pipes, drains, hedges, ditches, *&c.*, through the whole extent of the parish to which he belongs. If he discover any depredation, obstruction, or innovation, contrary to the terms of the law, he requires the repairs or removals to be executed by the offenders, or by the persons who are bound to execute them. If within twenty days after this notification, all is not restored to perfect order, the surveyor directs the work to be executed at the expense of the offenders; the latter moreover pay a fine proportionate to the length of the hedges, drains, ditches, *&c.*, which have been repaired.

The law authorizes the surveyor to make new ditches and drains, or to enlarge the old ones in the grounds adjacent to the road, if such should be deemed necessary, for carrying off the water and keeping the public roads in good condition. Indemnities are granted to the owner[illegible] ...unds.

From time to time the surveyor must submit to the justices of the peace a complete plan of the situation of the roads, bridges, causeways, and pavements, which may happen to be out of order, and which must be repaired either by private individuals or by public bodies*. The justices determine the time necessary for these repairs. If they are not completed on the fixed day, the offenders are summoned to appear at the next session of the justices of the peace. These magistrates are authorized to execute the repairs at the expense of the offenders.

That the surveyor may not be influenced by the desire of favouring any particular friend, or securing any personal interest to himself, the justices of the peace are authorized to specify the arrangements to be adopted in the different works for the support and repair of the roads.

We will close this chapter by describing the legislative measures relative to the excavation, purchase, and transport of the materials to be employed in the road-work.

The surveyor may procure gravel, sand, chalk, or stone from the commons, and from every river and stream, throughout the

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* Art. XXIV. of the general act relative to roads, specifies how the road surveyors are to present at the general quarter session of the justices of the peace. 1st. The general list of the offences against the road statute. 2d. An estimate of the repairs to be made, either by the parish, or by individuals; so that the court may determine the amount of the fines to be exacted, and the taxes [illegible] for the purpose of restoring the roads and their a[illegible] state of repair.

whole extent of the parish to which he belongs. But he is prohibited from turning any current of water, or from injuring by his excavations any private or public buildings. He must not dig within less than 100 feet above or below bridges, dams, &c.

If, in consequence of excavations made for public or private works, any damage be committed upon buildings, roads, bridges, fords, mines, &c., the offender is compelled to pay a fine equivalent to from 20s. to 5*l.* (25 to 125 francs), in addition to a reasonable compensation.

Any individual suffering injury by the removal of the materials necessary for the road work, is indemnified by the surveyor*.

If the grounds which are parish property be not sufficient to provide materials for the road work within the parish, the surveyor at the general session of the justices of the peace, applies for permission to provide himself in the parish grounds and water courses [illegible]f the adjoining parishes by paying an indemnity. This indem[illegible]y is settled between the surveyor and the owner of the property, in the presence of two or more respectable inhabitants of the parish. If the parties cannot come to an agreement, the matter is referred to the justices of the peace.

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* In order to collect stones on the ground of any private individual, it is requisite that his consent should be procured, or that a justice of the peace, after hearing his objections, should pronounce a special decision to that effect.

It is also requisite to obtain the consent of a land-owner to dig in his quarry. But the surveyor is authorized to collect, without any previous consent, from every quarry in his parish, the stones of which he may stand in need. The surveyor of parish roads cannot take the stones which the surveyor of a turnpike road may have already appropriated to his own use.

In some places, for want of other materials, clay is calcined, in order to produce a substance similar to brick. In this case, the surveyor is authorized to extract the clay, as well as to extract chalk or gravel. He may dry it on waste grounds or commons, and convey it away like any other species of material, by indemnifying individuals for any injury they may sus[illegible] these operations.

I may mention the following regulations, as an example of the care with which the English Parliament provides against the occurrence of the slightest accidents which might arise from negligence in the execution of the public works.

When the road surveyor makes an excavation in any ground, for the purpose of extracting stone, gravel, &c., he must, forthwith surround it by a barrier or fence. He must fill it completely if he do not find the materials which he wished to extract. As soon as he has finished digging in a quarry, he must replace all the useless materials which he dug out of it; *and he must give a gentle slope to the edges of the excavation, in order to obviate the risk of accidents* *.

All expenses incurred by the purchase of materials, the indemnities paid to land-owners, the erection of finger-posts, &c., are defrayed out of funds raised by a general assessment made by the justices of the peace on the inhabitants of the parish; on condition however, that this assessment do not exceed, for the road expense sixpence in the pound, that is to say, one-fortieth of the rental of the landed property. (This assessment has been increased by statute 55th of Geo. III.)

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* Any surveyor who may neglect to observe the regulations thus prescribed, must pay, for each offence, a fine amounting to 10*s*. If within six days after he receives notice from a justice of the peace to remedy this negligence, he do not obey the order, a new fine is exacted from him, amounting, according to circumstances, to from 2*l*. to 10*l*.

CHAPTER III.

Turnpike Roads.

The progress of trade, and the increased means of conveyance which it requires, have gradually rendered the maintenance of the public roads more and more expensive. On those roads which were much frequented, the tax imposed and the statute-labour, not being found sufficient for the purpose, it was determined to erect turnpikes, for the purpose of exacting from saddle-horses, and beasts of burden, as well as from carriages, a toll which is applied to the maintenance of the road. The roads which are subject to these tolls are called *turnpike roads*. They were first established about a hundred and sixty years ago.

In spite of the miseries of civil war, and the disorders of anarchy which prevailed during the commonwealth in England,—in spite of the despotic oppressions to which that anarchy gave rise under Cromwell's reign, there cannot be a better proof of the progress of society, in regard to comfort and industry, than the measures to which Parliament was obliged to have recourse on the second year after the return of Charles II*. Among these measures

* See Act 13 and 14 Car. II. cap. 6. In this act [illegible] breadth of wheels and the weight of carriages already [illegible] ited.

were some for widening the roads, a proceeding rendered necessary by continually increasing traffic. Others provided the means of repairing the wear and tear of the public roads; in the following year, the turnpike duties were instituted *.

It was natural to expect that the people of England would behold with pleasure the establishment of a system calculated to relieve them in some degree from the burden of statute-labour; for this new system threw the principal charge on persons of property, who, by means of their horses and carriages, are the greatest destroyers of the roads. But the mob, with a blind disregard to their real interests, and with their characteristic hostility to all fiscal innovation, pulled down the first turnpikes which were erected; and it was found necessary to employ military force, to compel the people to respect this means of improving the condition of the public roads, for their own convenience and benefit! In France, during the Revolution, the government attempted to establish turnpikes on our great roads; but the people rose in the same manner to oppose the system. The Executive Directory, however, had not sufficient firmness to maintain this useful innovation, which it would be well to introduce again, and above all, to support with energy.

* The first act in which these duties were specified, commences the Statute of the third Parliament held under Charles II. It relates to the road from London to Scotland, passing through Hertford, C[illegible] and Huntingdon.

A hundred and ten years after the establishment of turnpikes on the roads of Great Britain, Parliament deemed it necessary to combine in a single act (13th Geo. III., cap. 84.), all the laws relating to that subject. Subsequent enactments having modified many of the measures established by the general law, it became necessary to re-mould it entirely. This was done in 1820, 1821, 1822. In this last year appeared the 3d statute of Geo. IV. cap. 126, comprising every regulation which experience has shown to be most advantageous for the management of turnpike roads. We will proceed to cite the provisions of this new act, which differ from those we have mentioned on the subject of open roads.

In conformity with that great principle of the English constitution, that no tax shall be levied without the consent of the people, or of their representatives, it is impossible to establish any toll on the highway without the formal consent of Parliament.

The act which regulates the collection of this road tax, and which transforms an open road into a turnpike road, places the receipt and employment of the funds proceeding from the tolls, under the superintendance and direction of a number of persons called trustees. These trustees exercise their functions gratuitously. They compose what is called a trust, for directing and managing the labour, revenue and expense of the roads.

It was complained that trustees had become far too numerous—a circumstance which prevented them from co-operating in an adequate way. This inconvenience is chiefly felt in the neighbourhood of London. Accordingly one of the most effective measures proposed to Parliament for the better regulation of turnpike roads, has been to diminish the number of the trusts—by allotting to each of them the direction of a greater extent of road. Finally, it has been proposed to form a single trust from all those which superintended the labours and the expenditure of the roads in the neighbourhood of the metropolis, within a circuit of ten miles round London. *(Report made to the House of Commons on Turnpike Roads*, 1819. *See Chap. V. of this book.)*

Parliament sometimes appoints more than a hundred and twenty persons to form a trust. It would be better if a smaller number were appointed, and if the conditions necessary to be fulfilled by individuals before being admitted to such confidential situations, were more severely exacted. It is but just, however, to observe that the new act has rendered these conditions more difficult, which is considered an important improvement.

The justices of the peace in those counties through which a turnpike road passes, are included by right under the act among the number of trustees. Every other citizen must first prove that he possesses a certain fortune, before he can be admitted

to this honorary office. He must prove that he enjoys an annual income amounting to 100*l.* sterling, arising from landed property, or that he is the presumptive heir of a person having an income of 200*l.* sterling, derived from landed property. By a special provision, if the road, or roads, or any part thereof, be situate within ten miles of the Royal Exchange in London, any person may become a trustee, if he possess 10,000*l.* worth of personal property, after the payment of his debts. Any individual exercising the functions of a trustee, without having taken his oath that he can fulfil one of these conditions, is subject to a fine of 50*l.*

Two very wise measures are provided by this act. It is required that a trustee should abstain from exercising his functions whenever his own private interests are concerned; and that no individual keeping a public-house, inn, tavern, *&c.*, can become a trustee, or possess any place deriving a salary from the trust.

The revenue arising from tolls is paid into the hands of a treasurer, by the receivers, who are obliged, under pain of a fine of 1*l.* for each offence, to present their accounts to the trustees, whenever they are called upon to do so.

The trustees hold an annual meeting for the purpose of examining completely the state of the accounts and the affairs which they direct. They also hold special sittings whenever they deem it necessary. Three members at least are required

to constitute a special meeting, and seven to alter or revoke an order emanating from a preceding assembly. The object of a special meeting is required to be stated in the advertisement for the convocation, &c.

The trustees have the power of shortening, improving, or altering the direction of the road intrusted to them, as they may think proper. They cannot, however, deviate more than 100 yards from the old line of road, without the consent of the proprietor of the land crossed by the new line, who is besides indemnified for the alteration.

The act of Parliament authorizes the trustees to contract a loan, to provide the funds* necessary for making, repairing, or improving the roads. The interest of these funds is paid out of the proceeds of the tolls, and the capital is reimbursed from the same source.

The act for instituting each trust limits the rate of the tolls, and the number of the turnpikes, according to the probable balance of the income and expenditure. The trustees cannot exceed these limits; but they may diminish the toll, with the consent of the creditors of the road. They let out each turnpike by public auction, which is announced

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* Any individual, who subscribes to a loan for constructing or maintaining a turnpike road, is liable to an action of debt for the recovery of the amount, if he do not come forward to fulfil his engagements within twenty-one days, reckoning from the period when he promised to furnish his funds.

thirty days previous to the sale, in an advertisement, stating the net produce of the tolls, during the preceding year.

On the erection of a new turnpike, the trustees are required to give notice that they will hold a general meeting in twenty-one days at the earliest, for the purpose of deciding whether or not it shall be erected, and in what situation it shall be placed.

In case the trustees should erect a turnpike, with out observing the regulations of the act of parliament, by which their functions are assigned to them, or merely without the legal authority, the justices of the peace, at their quarter sessions, may give orders for its removal. The justices must then address their *exequator* to the high sheriff of the county, as th[illegible] representative of the executive power.

[illegible]e works for the support of toll roads, are under the superintendence of special surveyors, who are appointed by the trustees, as are also the treasurer of the road, the toll collectors, *&c.* All these persons must furnish a good security for the sums that are lodged in their hands.

As the inhabitants of a parish through which a turnpike road runs, are the first to derive advantage from it, with respect to their agriculture, trade, and manufactures, the legislature has deemed it advisable to oblige these inhabitants to defray a special portion of the expense of supporting the road*.—

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* This measure is the more just, since by art. 6, act 84 of the 13th Geo. III. vehicles of every description employed in agricultural labour, are exempt from the paym[illegible] However.

They are therefore required to furnish annually, three days' labour, according to the same regulations as those that are observed in the labour of free parish roads. The law also permits an equivalent compensation in money to be substituted for the road labour.

The surveyors of turnpike roads must employ the labour and money supplied by each parish, on that part of the road which is situated within the parish, under pain of being fined for each transgression of the regulation. If several turnpike roads run through one parish, it may happen that three days' labour are not sufficient for their support; the justices of the peace assembled at the quarter sessions, are in that case authorized to prescribe a new division of labour between the open and the turnpike roads. They must, however, previously take the opinion of the surveyors of these different roads.

If a parish neglect to contribute, as the law requires, to the repair of a turnpike road, the court to which the case is referred fines the parish liable, in damages and expenses, which are levied by assessment upon all the inhabitants.* The amount is directly lodged in the hands of the treasurer of the road.

If the revenues of a turnpike road are sufficient for its own support, as well as for the payment of its

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on some roads, parliament authorizes for the passage of carts, *&c.*, laden with certain kinds of fossil manure, the exactions of a *part* of the ta[illegible] descriptions of loads.

debts, the justices of the peace in each district, when assembled at the quarter sessions, may, on the demand of the parish, and after an examination of the receipts and expenses, order that the labour due by the inhabitants for the support of the road, shall be transferred to other roads within the parish.

All the police regulations for ensuring the preservation and free traffic of parish roads, are applicable to turnpike roads. The surveyor, like the surveyor of parish roads, possesses the right of compelling the proprietors of lands adjacent to the public road, to make and support ditches, drains, *&c.* The surveyor must obtain the authority of a justice of the peace before he can collect in a field, the stones necessary for the road work, at least, if the proprietor of the field should refuse to give his consent for that purpose. In all cases the trustees are bound to pay for the materials which are taken from enclosed lands, for the works under their superintendence.

On turnpike roads it is the business of the trustees to order the fixing up of mile-stones, and the erection of finger-posts at cross-roads and in dangerous places, on open roads; all complaints in this respect are within the jurisdiction of the justices of the peace.

The law adjudges the punishment of felony, that is to say, capital punishment* for the wilful destruc-

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* This is a mistake, the act prescribes seven years' transportation, or a mitigated punishment, as in cases of [illegible] larceny.—*Translator.*

tion of a turnpike or of a weighing machine, as well as for the destruction of posts, parapets, chains, bars, or any fences belonging to a turnpike *. Any individual who may attempt to force a turnpike, or to assault the collectors, is liable to a penalty which, according to circumstances, may amount to from 2*l.* to 10*l.* If the offender be unable to pay the fine he may be sentenced to three months' imprisonment †.

The law empowers trustees to prosecute any individual who may damage the public road of which they have the superintendence ‡. All fines exacted for the commission of damage, or for infringements of the regulations of the turnpike roads, are applied to the support of those roads.

The justices of the peace may be trustees and even creditors of the roads, without ceasing, on that account, to exercise their judiciary power, in the

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* The damages and expenses incurred by such an offence are paid by the hundred in which the offence was committed. But if, within twelve months after the commission of the depredation the offender be detected and condemned, the fine which he is bound to pay, goes by right to the inhabitants of the hundred.

† If the offender should be without the jurisdiction of the justices of the peace, where the crime was committed, the sentence of these justices is transmitted to those of the jurisdiction in which the offender resides, that it may be executed voluntarily, or by compulsion, or, if necessary, by seizure. The testimony of a respectable inhabitant of the parish is sufficient for the conviction of an offender, taken in the fact on a turnpike road.

‡ The expenses of the prosecution are paid out of the revenues of the trust.

different measures which require application of the turnpike act. A sheriff, deputy, or bailiff, who may refuse or even neglect, in any particular, to assist in enforcing this act, is fined 10*l*. for every instance of refusal or neglect which may prove detrimental to the public service.

Far from limiting itself to the general measures which we have just described, the British Government conceived that to specify the regulations to be observed with respect to the weight of waggons, the number of horses in each team, the breadth of the wheels, the length of the axle, would tend effectually to the preservation of the roads. So early as the year 1662, the English Parliament laid down the basis of these regulations *. In treating of commercial conveyances we will give a list of the regulations thus determined by law, and estimate their effect on the preservation of the roads.

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* Part IV. *Commercial Conveyances.*

CHAPTER IV.

Private Roads and Statute Roads.

Though the two classes of roads of which we are now about to treat, are managed in a way essentially different from each other, yet we shall conclude our account of them in one chapter, because they both form exceptions far less extended than the two kinds of roads which have been describing in the preceding chapters.

Private Roads

May be reduced to those which are made by an individual across his own or his neighbours' grounds, to communicate with the public road; for example, in order to convey to the public road the produce of his quarries, mines, manufactures, *&c.* An individual requires no permission to make a road on his own estate, but he must have the authority of an Act of Parliament for extending that road over his neighbours' land. The conditions on which this authority is granted, as well as all the forms to be observed in purchasing the ground for the road, are the same as the conditions and forms for the grant of a canal, when the individual to whom the grant is made, finds it necessary to en-

croach upon ground belonging to other persons. For the sake of avoiding useless repetition, we may refer to the second book of the present work, where the legislative measures here alluded to are developed as fully as the importance of the subject demands.

Statute Roads.

The general spirit of the English legislature, is, as we have already shewn, to assign to parishes and local associations or trusts, the duty of making and supporting open and turnpike roads. The expenses required in these labours are every where defrayed by the inhabitants of the neighbourhood who more particularly derive advantage from them; and also by the proprietors of the carriages, carts, &c., which pass over every part of the road, under the management of a parish or a trust. However, there are cases in which certain roads cannot be made and kept in good repair by the mere resources of the parishes which immediately profit by them. Such for example are the principal roads made through a poor and not easily accessible country, for the purpose of establishing important commercial communications, securing internal tranquillity, or providing defence against foreign enemies. We shall now advert to two remarkable examples of statute roads established on the above considerations.

I. *Civil and Commercial Roads.*

The Irish Parliament having ceased to exist in the year 1800, the legislative power of that kingdom was thenceforward incorporated with the power of the British Parliament. Thus the administration and political relations between Great Britain and the island associated to her empire, have been more numerous, extensive, and active. The members sent by Ireland to the House of Commons, and the Irish Peers who have seats in the House of Lords, visit London during every parliamentary session, attended by their families, and a multitude of individuals of all ranks and professions are also obliged to repair to London at these periods, to take part in the various and important affairs connected with the proceedings of Parliament. A centre of power, in moving from place to place is followed by a host of ambitious intriguers, whose whole occupation consists in following the footsteps of the distributors of wealth and honour. After the union the most distinguished portion of the Irish nobility and gentry, instead of being called to Dublin, to administer laws to Ireland, were called to London. It has become also the fashion for idle persons of fortune, to spend the period of the parliamentary session in the British capital. Personal communication between England and Ireland has by this means become far more frequent and extensive than before the close of the

last century. At the same time, the two countries having experienced, though in very different degrees, the progress of wealth and industry, their mutual trade has been increased by this progress. Conveyance by land and by sea has also been augmented in an equal proportion, and correspondence of every kind has acquired greater importance and activity. The necessity of favouring this activity by improving the roads destined to connect the capitals of the two kingdoms, has been daily more and more forcibly felt.

From 1803 to 1814 the war between France and England, and the enormous expense incurred by the conflict, caused the British Government to postpone until the restoration of peace, the measures necessary for attaining this great object of national prosperity. But as early as 1815 Parliament granted 20,000*l.* for improving the communications of the public roads between London and Dublin. The whole of this sum was appropriated to the roads which pass through Wales.

This country which is mountainous throughout its whole extent, and extremely barren in many parts, was unable from the produce of its road labour and toll duties to execute the great improvement made in the roads which pass through it, and which from the very nature of their local situation demand considerable sacrifices. In these improvements Parliament regarded the particular advantage of the inhabitants of Wales merely as an object

of secondary consideration; and it would consequently have been very unjust to load the inhabitants with such a burthen of expense. Such are the reasons assigned for the vast sum allotted by the Treasury to the roads leading to Ireland.

In the years 1810—11—15 and 17 Parliament appointed committees of inquiry to examine the state of the roads from London to Dublin. The reports made by these committees shew the serious inconveniences and dangers to which travellers were exposed.

This road, so essential for maintaining the communication between six or seven millions of His Majesty's subjects on one side of the Irish channel, and twelve millions on the other, can never be put into a proper state of repair and safety, if it is left to local interests to support and manage it; in place of its being considered by parliament as a work of great national importance, affecting in a greater or less degree, all the inhabitants of the united kingdom.

In respect to the effect of applying public money to execute a work of this kind, upon the finances of the country, your Committee conceive that such an application of the public money ought not to be considered as such an expenditure as contributes in any degree to impoverish the country, or to diminish the general wealth of it, and therefore as inconsistent with a proper spirit of retrenchment. Provided the money is honestly applied in executing the work, and that the consequence of improving the communication is to lead the industry, skill, and capital, of these countries into more active employment, and thus to become more productive than they otherwise would be; the capital expended in the first instance will not be like a capital expended in the ordinary expenses of the state, and be thus taken away from the productive industry of the country to exist no more, but it will be employed productively, that is to say, in a way to assist and promote the

production of other capital, and in the end, it will be repaid to the state by the increased public revenue, which will be the necessary consequence of increased production in the first place, and then of increased national wealth.

If the whole money is faithfully expended in labour and materials in making the road in a substantial and lasting manner, it does a public good by the employment it gives and by the purchases it makes; it is attended with a great saving of capital in diminishing the waste of horses and carriages; it admits of those whose time is valuable to them, having more of it to apply to their business; it affords a great personal convenience and some saving of expense to all travellers; and finally, it contributes in a great variety of ways, to enable many persons to make more by their professions and trades than they otherwise could make.

Your Committee therefore confidently trust, that as parliament has recognised, in so many sessions, the principle of establishing a safe and convenient road between London and Holyhead, in order more completely to identify the interests of England and Ireland, and thus to lead to the mutual benefit of both countries, it will persevere in voting further grants of public money to complete it. In respect to the convenience of Irish travellers, your Committee regard this as a secondary and inferior object to that of contributing to the internal improvement of Ireland by opening a more easy and direct communication between it and the highly improved condition of England.

We will now quote the act relative to the works for establishing those communications, 55 Geo. III. c. 152, (July 11, 1815.)

Most Gracious Sovereign,

We your Majesty's most dutiful and loyal subjects, the Commons of the united kingdom of Great Britain and Ireland in parliament assembled, having granted to your Majesty the sum of 20,000*l.* for this present year, towards defraying the expense of repairing, altering, or constructing, such roads as shall appear to be

most immediately necessary for the facilitating the communication between London and Holyhead by Chester, and between London and Bangor-Ferry, by Shrewsbury, whereby the intercourse between Great Britain and Ireland will be beneficially promoted; do most humbly beseech your Majesty that it may be enacted, and be it enacted by the King's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal and Commons in this present parliament assembled, and by the authority of the same:—That out of any monies granted for the supply of the present year, there shall and may be issued and paid at the receipt of his Majesty's Exchequer in Great Britain, the sum of 20,000*l.*, without any deduction whatever to the Commissioners hereinafter named, which sum shall be applied by the said Commissioners towards the repairing, altering, making, or constructing such roads as shall be judged proper, in the manner hereinafter directed, and not for any other use whatever.

For the management and superintendence of this business, Parliament appointed ten special commissioners, at the head of whom are the Chancellor of the Exchequer for Ireland, the Chief Secretary of the Lord Lieutenant of Ireland, and the First Commissioner of Crown Lands. From time to time these commissioners must assemble in London, one of the three functionaries, who have just been mentioned, acting as chairman according to precedence. They decide by a plurality of votes, on the affairs consigned to them. If one should die or give in his resignation, his successor is appointed by the ministers.

The Act of Parliament enjoins the Lords of the Treasury to engage professional men to inspect the roads which are to be repaired at the expense of

the public treasury. The reports of these inspectors must be signed upon oath, and must contain an estimate of the expense of the works to be undertaken. These reports must afterwards be addressed to the special commissioners, who determine on what parts of the roads the operations shall commence. They must publish in the London Gazette a list and a description of the works to be undertaken; and this list must be addressed to the justices of the peace at the general session in every county, containing the roads on which the works are to be bestowed. The special commissioners must treat with the persons who make proposals in consequence of these advertisements.

As soon as the commissioners determine on the succession and order of the works, they must open in their books an account for each contract. To liquidate this account they are required to deposit a sum equal to the amount of the estimate. This being done, the contractor may commence; but he must do so without delay.

The commissioners are invested with powers similar to those granted to the trustees of turnpike roads: 1st, for the purchase of land necessary for changing the direction of roads, either by amicable adjustment, or according to the estimate of a jury composed of twelve individuals *; 2d, to extract

* An excellent clause in these regulations prescribes that the money paid for ground purchased for the public use from the

from parochial or private ground the materials requisite for the road labour; 3d, to indemnify the land owners for the damage they may sustain in this extraction of materials, either by an amicable adjustment, or by the decision of justices of the peace; 4th, for engaging clerks and agents to direct, superintend, and execute the works; 5th, for fixing the salaries of the individuals employed, according to the importance, difficulty, and fatigue required in their services. The law prescribes the modes of proceeding against offenders, whom the commissioners are authorized to prosecute.

The following was the course pursued by the commissioners, in fulfilment of the duties assigned to them. They first appointed an engineer in chief (Mr. Telford), who drew up a general plan of the roads which were to be improved and perfected. To this he added plans, profiles, details, and estimates of the works to be undertaken. The commissioners having next pointed out those inconvenient and dangerous parts of the road, on which it was desirable to *commence* the repairs, divided them into lots, each of which was to be the object of a separate contract. The plans and estimates

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property of a minor, or a lunatic, or a corporation, shall be lodged in the public funds, or by trust, in the hands of tw[illegible] sons appointed to receive the deposit. These sums cannot [illegible] wards be touched by guardians, trustees, &c., except by the approbation and direction of the Court of Chancery.

were deposited in the neighbourhood of these lots, in the care of persons appointed to shew them. The proposals for the contracts were addressed to the secretary of the commissioners; and on an appointed day all the letters were opened. The most moderate offer was accepted for each lot, provided it was made by a person of good character, furnishing sufficient security. The contractors were required to furnish security, and to forego receiving payment of *one-eighth* of the amount of each contract, until the works should be completely finished, examined, and approved by the engineers, acting under the direction of the commissioners. In order that a perpetual inspection might be kept up, the works were under the superintendence of a resident engineer, and an inspector, intrusted with a number of lots included within a distance over which the vigilance of a single individual might be effectually maintained.

Every month, the work was measured, and an estimate of the quantity completed was sent to the office of the commissioners. The contractor was paid seven-eighths of the amount of this estimate. The complete estimate of the works being at length drawn up and sent in, the works themselves underwent a general inspection, for the purpose of ascertaining that they were perfectly good, and conform- with the agreements. If any thing required rectifying or finishing, the contractor was compelled to remedy the deficiency before he received pay-

ment of the last instalment of the sum for which he had bargained.

II. *Military and Commercial Roads.*

We will take, by way of example, those of the Highlands of Scotland. Though laid out according to a plan of attack and defence, without regard to ascents and descents within the limits in which an army may pass, they have become extremely useful in a country destitute of better roads. They afford proofs of the advantage to be derived from a good system of commercial roads.

These military roads were commenced in 1732; and so early as 1745, they opened a communication from Stirling to Inverness, and from Inverness to Fort William. The rebellion of 1745 rendered still more obvious the importance of multiplying them. The soldiers stationed in the Highlands for the purpose of maintaining subordination, were employed as labourers; and military roads, measuring to the extent of about 750 miles, were successively laid out. Of these about 550 miles were still employed in the year 1803. These roads were supported at the expense of the public treasury, though their importance, in a military point of view, was at an end*.

* General Abercrombie, who was killed at Aboukir, having been, some years previously, appointed inspector of these roads, declared officially that they were not necessary for military purposes.

In 1802, the state of the Highlands of Scotland claimed the attention of government; and in 1803, the Treasury gave orders for a survey of the coasts and central parts in that quarter of the British dominions. The report* of this survey included a general plan of commercial communications. It was submitted to Parliament, and then referred to a special committee, by whom four reports were made to the House of Commons, as the ground-work of the important laws that were to be framed on this subject.

A country, like the Highlands of Scotland, intersected by numerous torrents, and rivers of rapid current, and subject to frequent falls of rain and snow, presented difficulties, and demanded expenses, for meeting which the mere resources of the owners of the productive part of the soil were insufficient.

For this reason, Parliament determined to defray, out of the public treasury, one half the expense of constructing the roads and bridges, which it was deemed expedient to establish immediately, for the purpose of facilitating commercial communications. Commissioners were appointed to superintend the application of the funds granted by virtue of this decision (43d Geo. III.)

In 1821, these commissioners, after having ex-

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* This report, and the plan it contained, were drawn up by Mr. Telford.

ercised their functions for eighteen years, rendered an account of their operations, in nine reports, which were printed by order of Parliament. These reports, from which most of the facts here recorded have been obtained, are highly valuable documents relative to the communications of the Highlands.

The roads have been traced out on an extensively conceived plan, so as to facilitate the communications of the Highlanders, the transport of their flocks, and of all productions which they import or export.

The inhabitants of these remote regions soon experienced all the advantage of the works authorized by Parliament. In the year 1804, the county of Inverness obtained permission to tax itself, in order to reimburse the land-owners who had advanced funds, or who had mortgaged their estates, to supply the loans necessary for the establishment of the roads and bridges. In the two following years the other counties imitated this example; and the improvements soon extended over a superficies of ground exceeding 500 square miles.

Since the year 1803, Parliament has successively granted for the works of the Highland roads, *&c.*—

	£.252,390
And the inhabitants have contributed	201,799*
Total	£.454,189

* The sum paid by the inhabitants is less than that paid by the gover[illegible] because the preliminary expenses defrayed by the

This sum was employed over about 870 miles of road, and was applied to the erection of several considerable bridges, exclusive of those comprised in the contracts for laying out roads*.

The inhabitants of the Highlands, not content with having contributed upwards of 200,000*l.* to the establishment of their roads have offered, if government will continue to support half the expense, to make an additional advance of about 80,000*l.* for the same purpose. They experience the full advantage of these sacrifices. They wish to ensure the excellence of their roads by works which are necessarily very expensive: they are willing themselves to pay a great portion of the expense thus incurred; and yet the Highlands of Scotland are poorer than any portion of the British dominions.

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treasury, for technical and legal operations were not taken into account. It was according to the other expenses only, that the sum furnished by the inhabitants was determined.

* Mr. Telford, the author of the Parliamentary Report of 1802, was appointed to direct all these works. The average sum paid for the laying out or the restoration of roads was within 250*l.* per thousand yards. During the seventeen years occupied by these works, the expense of the direction and the superintendence of agents of every kind, from the principal engineer to the lowest surveyor, was 30,000*l.* (For the details of this subject, see p. 6, Ninth Report.) For the remuneration of the solicitor engaged to manage the legal business connected with the works, and to examine the securities offered for contracts (there were in all 120 different contracts), for the expense of stamps, advertisements inserted in the public journals, placards and postage, 10,000*l.* were paid.

What an example for our mountainous districts, such as Auvergne, Cevennes, Aveiron, the Vosges, Jura, the Upper and Lower Alps, and the Eastern and Western Pyrenees!

The roads, which were originally made purely for military objects, are now transformed into turnpike roads in the southern Highland counties, which are further advanced than the rest in manufactures and trade. If the northern counties continue their improvements, the roads in those parts must necessarily undergo a similar change.

But a great number of statute roads require to be kept in a constant state of repair; and for this essential object vast expense is not so necessary as unremitting attention. In a mountainous country, subject to frequent and violent storms, the examinations of the road-surveyor should be careful and often repeated, in order to arrest in due time the ravages of torrents, which may intersect the road with ravines, or cover it with stones dislodged by the current of the waters.

The commissioners in their ninth report observe, that the Highlanders have not manifested an inclination to support their roads, equal to their liberality in defraying the expense of first laying them out.

The military roads have been constantly supported at the expense of the public treasury, and they have cost 5,000*l.* annually. It is now estimated that all the roads in the Highlands may be

maintained for 10,000*l.* per annum. Parliament pays the half of this sum (59th Geo. III., cap. 135); and it is employed over 1182 miles of road. This makes for each mile 8*l.* 9*s.*, from which must be deducted 1*l.* 4*s.* 6*d.*, to defray the charges of superintendence, and the salaries, travelling expenses, *&c.*, of a surveyor and six deputy surveyors.—(*9th Report on the Roads of the Highlands of Scotland.*)

General Table of the length in miles of the Highland roads which are to be kept in constant repair, according to Act 59 Geo. III., cap. 135.

In the Counties of	Roads.		Roads of Dingwall	Total.
	Statute.	*Military.*		
Inverness	346	176		522
Argyle	134	80		214
Ross and Cromarty	180		25	205
Sutherland	95			95
Caithness	54			54
Elgin or Moray	7½			7½
Bute	16¾	27		43¾
Aberdeen	16			16
Nairn	14			14
Bamff	2¼			2¼
Total.	866	283	25	1174

The act of the 56th Geo. III., cap. 83, grants 50,000*l.* for the improvement of a great portion of the road between Carlisle and Glasgow. This road, which joins England and Scotland in the westerly direction, is about 100 miles in length, and there are several bridges to be built along it. The general management of this road is consigned to the commissioners of the Highland roads, and Mr. Telford is the engineer intrusted with the special direction of the works.

CHAPTER V.

Parliamentary Inquiries and Reports relative to Roads.

THE English Parliament has not limited itself to the establishment of general laws for regulating the police and the works of the roads. Special committees have frequently been appointed for inquiring into the state of the public roads in different parts of the kingdom, and to deliberate on the means of rendering the passage of wheeled vehicles easy, economical, and rapid. These two great objects of general utility, of which the one cannot attain perfection without the other, have been justly regarded by Parliament as inseparable.

The solicitude evinced on this subject by the British Parliament, together with the hints and improvements it has called forth, are worthy the attention of statesmen in every civilized nation; but particularly in a country which, like France, enjoys a system of government established on the same principles and in the same forms as that of England. The proceedings of the British Parliament show how highly that great legislative body appreciates the importance of supporting and improving the public roads. They present to our Chambers examples of preparatory measures and forms of inquiry worthy to be imitated, in the [illegible] and

laborious investigation of the causes which may impede facility, safety, and rapidity of conveyance, and of the regulations which a well organized police may adopt, to maintain order in the public roads. We must particularly remark the appeal made by the British Legislature to the evidence of men of talent, for ascertaining the best methods of laying out, supporting, and repairing roads; and the reference which is made to experience to determine what form of wheels and vehicles is best calculated to favour, in a due degree, the interest of trade,—that is to say, to secure economy and celerity of conveyance, with the preservation of the public roads, and a consequent diminution of expense to the persons by whom the roads are supported.

An analysis of some of the reports made to the House of Commons on these different subjects, will be more useful, and will produce a more powerful and lasting impression, than any general considerations and prolix demonstrations on this subject.

In 1808, the House of Commons appointed a special committee, which was instructed—1st, to examine all the acts then in force relative to the use of broad wheels; 2d, to determine what form of wheel is most favourable for the draught of horses and the preservation of roads; 3d, to propose new regulations to contribute to this preservation; 4th, to trace out the measures proper to be adopted with the view of rendering more effectual the acts passed in 1788 and 1790, for limiting the number of persons to be

carried by stage coaches, both inside and outside, and the act passed in 1808 for subjecting the drivers of stage coaches to certain regulations.

The committee, in the first place, divided its labours into three parts, relating, 1st, to the form of wheels; 2d, to the construction of vehicles; and 3d, to the laying out of roads.

The first question is treated with all desirable fulness, in a report printed on the 18th of July, 1806, and also in a subsequent report. With regard to the second question, the committee were specially to inquire, whether it was most advantageous to employ heavy waggons or light carts drawn by a single horse; whether it was expedient to prefer the power of the horse to that of the ox, or reciprocally, *&c.*

To resolve these two first questions, the committee called into requisition the information and experience of civil engineers, post-masters, contractors for stage coaches, *&c.*, coachmakers, cartwrights, and mechanicians. They were examined separately on every point which bore a direct or indirect reference to the subjects with which they were acquainted. They were requested to state the results of their observations, the positive facts they had collected, and the improvements they had to suggest. These examinations, which develope the information that has been derived from experience, and which contain descriptions of new measures and new operations, accompanied by the plans necessary for refer-

ence, are printed as appendices to the reports of 1806 and 1808. These important documents have supplied us with a multitude of facts highly important both in theory and practice, which we shall develope in the second section of the present work, in treating of land conveyance.

The third question, relative to the laying out of roads, was wisely referred by Parliament to the same committee that was appointed to inquire into the best plan of constructing wheeled vehicles; for, as we have already stated in other terms, in order to attain perfection, it is necessary—1st, that the roads should in the highest degree favour facility, safety, and rapidity of motion; and 2d, that vehicles should be constructed so as to preserve, as far as possible, the primitive form and quality of the roads.

The English have been long seeking to combine these great objects of public utility; and they have lately succeeded in so doing in a remarkable degree. This is plainly demonstrated in the report made in 1819, on the general state of the roads in England; and in the reports that have been published relative to the road from London to Holyhead.

The efficacy of the measures latterly adopted by the most skilful engineers in Great Britain, is confirmed—1st, by the evidence of post-masters and contractors for stage coaches, &c., who in their examinations affirm, that their horses go faster, draw greater weight, and yet are not so soon worn out on

the new roads as on the old ones; 2d, by the clerks of trusts, who affirm that the expense of supporting roads is considerably diminished by the new plan, &c.

These parliamentary reports have therefore the advantage of presenting at once the new views and useful suggestions of the most skilful professional men; the results of experiments made for the express purpose, or collected by attentive and unremitting observation; the evidence of individuals whose interests are entirely opposed, or at least wholly unconnected. Thus the committee of a parliamentary inquiry relative to the great question of conveyance, consult the post-masters, who only require that the engineers should construct a road not very soft, whatever may be the expense attending it. They consult the clerks of trusts who principally demand one thing more, namely, an economical mode of laying out and maintaining the public road, so as to incur the least possible expense, at the expiration of a given time. Finally, they consult the traveller, who (if he be conveyed by any but his own horses, as for example in a post chaise or a stage coach) without caring whether the roads be hard or soft, cheap or expensive in their construction or support, desires, above all, that they should be smooth and perfectly level, so that he may not be incommoded by jolting.

After consulting by turns these varying interests and opinions, the parliamentary committees, acting

as legislative juries appointed to propose measures for ensuring the greatest public advantage, finally present to the House of Commons the result of their inquiries, and the mass of facts they have elicited.

By an acceptation of language no less just than forcible, the examinations themselves, the documents which support the testimony of the professional men examined; in a word, every thing on which the report is founded, is, in the English parliamentary style, called the *evidence* of the inquiry. This evidence is always printed at the end of the report; and the public are by this means enabled to form their own judgment on the questions submitted to the consideration of Parliament. The periodical writers and economists, political and technical, vie with each other in propagating their opinions on the subject under discussion; some for the purpose of supporting, others of opposing, the ideas expressed in the report. Thus information is brought out from all sides; and when the moment arrives at which Parliament proposes to establish laws on the result of these preparatory measures, the subject is so generally understood, that the most judicious decisions may be anticipated.

Yet, as all human proceedings are exposed to error, the committees of inquiry do not always present the most perfect measures for the acceptance of the legislature. These measures frequently exhibit the traces of public or professional prejudice, which are not easily avoided. Private interests and pas-

sions occasionally impede the strict impartiality of the inquiries. But the publicity given to the operations of each committee acts as a check to abuse, and points out every fault that may be committed. Time, that great investigator of truth, discovers it the sooner, when even these illusions of error are thus compelled to be exhibited in broad day. In this the British Parliament adopts the surest and most speedy course for finally arriving at the measures most consistent with the public interest.

We have yet one general observation to make on the part which the legislative authority deems it necessary to take in the works of the public roads. Parliament wishes to ascertain every fact connected with the economy, safety, and comfort of public communication, considered in its most essential relations; but it discourages the executive power from taking upon itself the management of works * which may be safely intrusted to the zeal

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* It was proposed to the members of the committee of inquiry appointed in 1819, to establish a general management of turnpike roads, to be under the superintendence and patronage of some department of the ministry. But the suggestion was rejected, on the ground *that it was unreasonable, and contrary to the public interest*. The committee considers, says the report, that there are many important reasons to determine Parliament to leave the complete direction of the affairs of the different trusts in the hands of those trustees to whom the law has at present confided them. The experience, the character, and the interests of these trustees furnish to the public the surest pledges of their skill, attention, and economy.

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and the well-understood interest of the public. Thus the construction and support of parish roads are left to the parishes to which they belong; the laying out and preservation of turnpike roads are consigned to trusts; and it is the business of private individuals and their trustees to execute the private roads that may be exclusively useful to themselves. The government, however, reserves to itself, 1st, the execution and superintendence of the roads that may be necessary for the defence or tranquillity of the country; 2d, the laying out or making extensive improvements on the roads essential to the general prosperity of the kingdom, but which are so expensive that it would be unjust or impossible to require that the districts in which they are situated should alone pay for works, the advantage of which they do not exclusively enjoy; these great operations being completed, the local authorities are intrusted with the superintendence and support of roads, which have been

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The functions of trustees are gratuitous, as has already been observed in the preceding chapter, and the committee of 1819 cautiously avoided proposing that they should be otherwise. The committee merely wished, by consigning to the management of a single trust all the turnpike roads within a circuit round London, to render them a model to the rest of the kingdom, by adopting, on these roads, the best system of construction, repair, and support. Thus, added the committee, the spirit of improvement spreading from the centre to the circumference would rapidly extend itself into every part of the kingdom, and would produce those numerous public and private advantages which a former committee hoped to obtain in an object of such great national interest.

created or perfected for the benefit of trade. Sometimes, as with respect to the commercial roads of the Highlands of Scotland, the object of which is to promote the physical improvement and civilization of a country, whose soil and climate present extraordinary difficulties to be surmounted, government offers to defray one half the expense necessary to provide for and facilitate public communication.—These measures tend to excite the emulation and patriotism of the people, even in the most remote quarters of the empire.

In times of difficulty, as, for example, in rigorous winters, when the severity of the climate is rendered more painful by the dearness of provisions; and at those periods in which agriculture and trade laboured under a depression, Parliament authorized the ministry to advance funds to parishes and trusts to defray the expense of extraordinary road works*.—Even during the flourishing periods, if a trust should be inclined to undertake an improvement which is calculated to produce a sufficient revenue to cover

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* From the 6th report of the committee appointed to examine the works of the road from London to Holyhead, it appears, that in 1817 the St. Alban's trust obtained from the Exchequer 6,000*l.* for the purpose of diminishing the abrupt slope of a hill. The additional toll duties which the trustees were, in consequence, authorized to levy, produced 12 per cent. interest on the capital borrowed, which will therefore soon be repaid. The public will then freely enjoy the benefit of the new improvement. The Wolverhampton trust has followed this example.

the expense, Parliament grants a similar advance on the Exchequer.

In England, therefore, the supreme authority grants to the citizens credit and funds, to enable them to execute works which are no less interesting to the government than to themselves; while in other countries the people are required to pay their funds into the treasury, so that the government may execute, when and how it pleases, works in which the public alone are concerned. In the following chapter we shall more particularly advert to this important point.

How far are we from sharing the spirit of the ministry and parliament of Great Britain! In France, even the care of a by-path is scarcely ever intrusted to the inhabitants of the neighbourhood. Before a basket-full of stones can be laid down on the most obscure departmental road, it is indispensably necessary that the cost of these materials should form an item, first in the arrondissement budget, then in the departmental budget, and afterwards be submitted to the grand council of roads and bridges in an office at Paris, at the distance of two hundred leagues from the spot where the work is to be executed. The paltry charge in question having passed through all the delays of profound investigation, the desired permission is granted; provided, however, that not the slightest neglect of form should render it necessary to undertake, for

a second time, the task of exploring the immense labyrinth by an inverse course. Tthe accounts, after passing through an almost endless series of progressive operations, retrograde with official delay, to their first source! An engineer is then permitted to execute at his leisure the trifling repair of the road which has occasioned this long and appalling train of official formalities, ascending and descending.

Though the English parliament takes no share in providing the chief portion of the funds applied to the service of the roads, yet it is nevertheless convinced of the importance of requiring annual returns to show the state of the management of these roads. We will enter upon a few important details on this subject.

Road Expenses.

In England, as we have already observed in Chapter II. the inhabitants of the different parishes enjoy the right of taxing themselves for the support of their poor and their roads, according to the amount of their property in land, houses, and cattle. The taxes thus raised for the twofold object of maintaining the poor and the roads, are called, without distinction *poor-rates*. Thus many foreign writers, in alluding to the expense of supporting the poor in England, have fallen into the error of assign-

ing to this sole object the whole amount of the parish taxes, a considerable portion of which is directed to the support of the roads *.

On the 1st of June, 1818, in consequence of the measures prescribed by the act 55 Geo. III. c. 47, a return for each county, and then a general recapitulation was laid before the House of Commons, in order to shew the annual cost of supporting the roads, either by statute labour or by a supplement in money raised by the poor rates.

In order to obtain, with the greatest certainty an average amount, the expense of maintaining the public roads was calculated from the estimates of three consecutive years, from 1811 to 1814. These estimates shew separately the total length of paved streets, turnpike roads, and common open roads. By the following abstract of these returns it will be seen that paved streets and turnpike roads form only a proportion of *one-fifth* of the length of open parish roads :—

* Mr. Dupin has confounded *poor* rates and *parochial* rates. In all parishes the amount of the expenditure upon the poor and the highways are separated by law; though some portion of the poor's rate is occasionally applied to the employment of road labourers.—*Translator.*

Public Carriage Roads in England.	Years ending in October.		
	1812.	1813.	1814.
Paved Streets and Turnpike Roads..	19,114	19,132½	19,178
Other Roads........................	95,105	95,142½	95,184
Total length....	114,219	114,275.0	114,362
Contributions in labour (pds. st.)....	515,508	539,522	551,241
Contributions in money............	271,512	276,947	287,059
Taxes levied for the roads..........	570,754	613,604	621,512
Total....	1,357,774	1,430,073	1,459,812
Expense of preparing documents, &c.	21,499	26,252	25,700

Thus it appears that the average annual expenses of all the roads in England, were from 1811 to 1814 as follows:—

Contributions in labour - -	£535,423
Ditto in money - - -	278,506
Sums raised by rate - - -	601,954
Total - - - -	£1,415,883

This gives 12*l.* 7*s.* 6*d.** for the average expense of maintaining each mile of open road.

According to a report made to the House of Com-

* In this calculation I have deducted from the total amount of the expense of road labour, the three days' labour which is allowed for turnpike roads; while six are allowed for open parish roads. *See Chap. II. of the present work.*

mons on the 10th of June, 1821, the total amount of the sums levied in a single year on turnpike roads, amounts to 970,618*l.* This gives the average value of 47*l.* 18*s.* for the support of each mile of paved street and turnpike road. By adding the contributions in labour, the expense will amount to about 51*l.* per mile.

This revenue, immense as it is, is not sufficient for the construction of new roads, and the support of those that are already established. The different trusts have contracted debts, for which the rentals of each county are responsible. The total amount of these debts, at the period of the inquiry, of which the report to which we have above alluded gives the result, was 3,874,254*l.*, that is to say, that these debts then equalled four years' revenue. It is affirmed, that if the same calculation were made for Wales, Scotland, and Ireland, the general amount of the debt of the turnpike roads would amount to seven millions sterling. The chief portion of this enormous debt was contracted for the purpose of undertaking extensive new works and improvements, to increase the utility and excellence of the public roads. In spite of the amount of these first sacrifices, such is the confidence and enterprising spirit of the British land-owner, that in every part of the three kingdoms new roads are daily laid out, and old ones altered or improved. For the execution of these works loans continue to be contracted on the securities guaranteed by new acts of parliament. Such

are the results that may be expected from the energy of a people left to themselves, and excited by the spirit of patriotism.

In France, during a period of profound peace, the government does not grant, for the support of our roads, *one third* of the amount which is supplied by the public in England alone, of which the superficies does not equal *one third* of France! And the degree of benefit which both nations derive from the good or bad condition of the public roads, is precisely in proportion to the sacrifices which are made by the people in the one country, and the government in the other. Can any reasons be urged in favour of public exertions, more convincing than comparisons founded on such striking facts as these!

BOOK II.

LEGISLATION RELATIVE TO WATER CONVEYANCE.

CHAPTER I.

Management of Rivers, Canals, &c.

By water conveyance, I mean the rivers and canals which serve for the purposes of commercial transport, and also the aqueducts by which water itself is the object of commercial transport.

In England water conveyance is not regulated by a general administration: its management, its works, and its police are all local. It is under the superintendence of the municipal authorities; or of special commissioners prescribed by acts of parliament, and chosen from among the inhabitants of the parishes, towns, or counties to which the control of the water communications may belong.

We will endeavour to give an idea of the progress of the British legislation with regard to water conveyance.

Before the creation of artificial means of internal navigation, endeavours were made to turn to the best account the currents of water which nature

offers. It was found necessary to prevent private industry from appropriating these currents of water to its own uses, and thereby depriving trade of the advantages to be derived from them.

The importance of these measures was so forcibly felt in England, even at that period when the nations of Europe had scarcely emerged from a state of barbarism, that, so early as the 13th century, the English inserted, among the provisions of Magna Charta, a clause expressly ordaining that the course of the Thames and of all rivers should be duty free, and that all obstructions should be removed from them. (Chap. xvi.)

With the view of putting in force this wise provision of Magna Charta, an act of parliament, passed in the reign of Edward III. (in the year 1351,) directed the demolition of the dams of every kind which had been raised since the promulgation of the fundamental law, and which threatened inundations, or tended to impede navigation. The dams were to be destroyed without any indemnity being granted to the individuals who had raised them to the detriment of the public. This provision, wise as it was, ran directly counter to many private and powerful interests, and in consequence it appears never to have been completely carried into effect; however, at the expiration of twenty years, on the serious complaints which were addressed to the king by the Lords and Commons, an act of parliament removed this salutary regulation, and ordained that a fine of

100 marks should be paid to the King by any individual convicted of having, by dams or weirs, injured the lands in the neighbourhood of any river, or rendered the current of water less navigable.

If private interest could successfully contend with public interest in a glorious and powerful reign like that of Edward III., it may well be conceived that during the period of weakness and anarchy which succeeded that remarkable epoch of the middle age, the interest of individuals was sufficiently powerful to break through all the barriers of the law. This fact is obvious with reference to the subject to which we are now alluding, from ch. 6 of the statute of Edward IV., (1472.) This act briefly describes the measures which had been previously adopted with regard to water conveyance, the violations which those measures had undergone, and the evils which had ensued to trade and agriculture. To impart additional force to these measures, the above-mentioned act condemns any individual who may impede the execution of the regulations alluded to, to a fine of 100 marks, 50 of which are to be paid to the party who may prosecute, and obtain the conviction of the offender.

Independently of the general superintendence which belonged to the private interest of each citizen, county officers, distinguished by the name of commissioners of sewers, were intrusted with the management of rivers, either for the purpose of drainage, or for regulating internal navigation, for removing

every obstruction from currents of water fit for the navigation of boats or ships, and finally for directing all the works necessary for the repair of injuries produced by inundations or accidents.

In 1427, the 6th Henry VI. ch. 5, established the forms according to which these commissions were to be instituted. This important act presents a complete system for water conveyance.

The 23d Henry VIII., ch. 5, renders permanent the temporary measures of the act of Henry VI. It empowers the chancellor to appoint commissioners to superintend the repairs of all damage occasioned to dykes, bridges, roads, and to the beds of natural or artificial currents of water, by floods or accidents of navigation. To the commissioners it reserves—1st, the right of constructing any works of art, and of destroying any ponds, dams, or even mills which they may think necessary for the purposes of navigation, or for reclaiming lands; 2d, the right of instituting inquiries or actions at law on account of detriment occasioned to any water conveyance; 3d, the power of fixing the amount of the indemnities or fines, according to the damage sustained or caused, and of levying taxes on property for the execution of the works from which that property will derive advantage. The law enjoins perfect equality in this territorial tax, without exception or diminution in favour of the clergy, the nobility, or the king.

Any individual who may neglect or refuse to pay

his portion of the tax, is liable to confiscation or fines, *according to the good discretion of the commissioners,* as the act which institutes them expresses. If any one refuse to pay the tax appropriated to the expense of drainage, *&c.*, the commissioners may seize his land, and let it at a life rent, or merely for a term of years. They may put in requisition the oxen, horses, waggons, and workmen necessary for the execution of the works, by paying suitable wages or indemnities. They are authorized to take the wood necessary for the works, by paying for it *according to their own estimate of its value.*

They are empowered to make the necessary regulations for the police, and for the support of the water conveyance. They appoint watchmen, bailiffs, collectors, treasurers, and superintendents of works for collecting and laying out their funds, as well as superintending the employment of these funds. All these individuals are accountable to the commissioners, by whom their salaries are fixed.

Thus it will be seen, that the commissioners are invested at once with judicial and executive power. Before they enter upon their functions, they must swear to discharge them with impartiality, independence, and moderation, exerting their utmost endeavours to establish and keep in force equitable and wise laws, decrees, ordinances, *&c.* They must swear that they are possessed of a clear

annual income equal to 40 marks, or that they possess landed property to the value of 100*l.*, or that they are freemen of a city or an incorporated town or borough, or that they are members of one of the four principal inns of courts. Any individual who may violate one of these conditions, is fined 40*l.* for every occasion on which he exercises his functions: one half of this fine is paid to the king, and the other to the informer.

The commissioners, as well as their secretaries, receive for every day which they devote to the duty of their offices, an allowance raised from the produce of the fines.

When a seizure is made by order of the commissioners, the party on whom it is made may prosecute the agent of the commissioners by whom the order was executed. A jury then decides upon the question according to the law of the land. If the agent of the commissioners should gain his cause, he receives as an indemnity the *triple* amount of the expense of the action and of the damage to which he has been unjustly subjected.

The commissioners are appointed for three years; and the regulations which they institute last only during a period equal to that of their appointment. According to the spirit of the British legislature, any citizen who may refuse to fulfil the functions of commissioner of sewers is liable to a penalty; in the same manner as those who refuse to discharge the gratuitous duties of surveyors of op[illegible]oads are

punishable. But no citizen can be compelled to exercise these functions in any except his own county. This is a highly just and reasonable regulation, since every landed proprietor must be supposed to feel particularly interested in the good condition of the district in which he himself resides. Besides, an individual may serve the public interest in the vicinity of his own residence, with more judgment and assiduity, and less sacrifice of time, than if he were called for that purpose to distant parts.

Such is the general system of legislation relative to water conveyance in England. There are special laws for the superintendence and management of certain currents of water, natural or artificial.

Thus, in the reign of Henry VI., in the year 1423, parliament appointed a committee to examine the defects in the course of the river Lee, which falls into the Thames, and to render it more fit for navigation. This committee was composed of persons of rank, who neglected the duties assigned to them. Consequently in the following year, parliament authorized the lord chancellor to select a committee from among the private inhabitants of the parishes adjacent to the Lee, who, as the act of parliament expressed, would be better able to correct the defects of the river, by the execution of proper works, and by the removal or alteration of those works which tended to impede navigation; 3d Henry VI., ch. 5.

The Thames is subject to a system of manage-

ment, on a much more important scale. The lord mayor and corporation of the city of London are the conservators of the Thames, and have the control of all that regards the safety and facility of navigation, from the mouth of the river to as high as flood-tide extends. Throughout the whole of this extent, the conservators exercise a similar inspection over all stagnant waters and currents which communicate with the Thames*. 4th Henry VII., ch. 15.

The 27th of Henry VIII., ch. 18, grants to the city of London one half of the fines exacted from persons who may damage the banks of the Thames, or injure its bed by ballasting or filling up.

The act passed in the 21st year of the reign of James I. for rendering the Thames navigable from Oxford to London, is worthy the utmost attention.

In a very remarkable preamble, it is stated as the grounds of this act, that the works for thus rendering the Thames navigable have for their object—1st, to diminish the price of fuel and other articles of the first necessity, in the city of Oxford; 2d, to facilitate the conveyance of the produce of Oxford and the adjacent country to London; 3d, to save the high roads leading from Oxford and its vicinity to the capital, which roads were during the winter so broken up

* By the 13th Elizabeth, ch. 18, parliament conceded to the corporation of London the right of rendering the river Lee navigable, from Ware to the Thames.

as to be extremely dangerous to travellers, and could not be kept in a passable state without enormous expense! Such was two centuries ago the condition of the public roads in England. Notwithstanding the limited extent of trade at that period, and the scanty population of towns, means were wanting for keeping the roads in proper order: it may also be observed, at the time here alluded to, there were no turnpikes.

The act, which was founded on these grounds, consigned the superintendence of the works of the Thames to eight commissioners, four of whom were to be appointed from among the members of the University, and four from among the inhabitants of Oxford. The choice was left to the corporation.

During the civil war in England, but little progress was made in inland navigation. Many works of improvement which had been executed during the long and peaceful reigns of Henry VIII., Elizabeth, and James I., were, at this period, damaged, destroyed, or neglected. Under Cromwell, order began to be restored; and the works for improving the condition of the interior of the country resumed their activity. But it was not until the return of Charles II. that river navigation experienced any sensible advancement. Charles II. and his emigrant partisans, had, during their residence in Holland, been struck with the great advantages of inland navigation; and thus from the moment of their return to England we can trace the revival of this

branch of public prosperity. One circumstance worthy of remark is, that at the period here alluded to, all the bills which were discussed in parliament on this subject had their origin in the House of Lords.

In the years 1661 and 62, the House of Peers attempted, but in vain, to introduce a general act for rendering navigable all currents of water, capable of answering the purposes of navigation. Several bills were however passed for ameliorating the navigation of different rivers, as for example, the Stour, the Salwarp, the Wye, the Witham, *&c.*

In the reign of William III. new acts added considerably to the improvement of the navigation of other rivers; these improvements continued during the reigns of Anne, George I., and particularly George II.

The general spirit of these acts was to consign to commissioners the management of the disputes that might arise out of the undertaking of river works. The expense of these works was defrayed by loans, which loans were afterwards paid by tolls. The laws on this subject are the same as those which apply to the artificial currents of water; we shall therefore refer the reader to the chapters in which we examine the regulations relative to canals.

Parliament has, by the adoption of rigid measures, provided for the conservation of the works of art necessary for water conveyance. By the acts 1st Geo. II., c. 2, 19, § 2, and 8th Geo. II., c. 20,

§ 1*, the law declares to be felony and punishable by death, the malicious destruction of any lock or weir established by authority of an act of parliament for inland navigation. The punishment of death is also inflicted on any one who may attempt to deliver, by force, an offender *legally* imprisoned for such a crime. The law punishes with one month's imprisonment and hard labour, the offence of maliciously opening flood-gates, or removing palings from a conduit, 8th Geo. II., c. 20.

The inhabitants of the hundred in which the offence has been committed are responsible for it, and if the offender be unknown, they must make good the damage, the expense of which, however, they may recover on the discovery of the offender. This is an excellent law, which it would be well to introduce into the regulations respecting our public works.

Water conveyance in Towns.

After the great fire of London in 1665, an act of parliament prescribed the measures to be adopted for re-building the city with regularity.

This act empowered the lord mayor and aldermen of London, to determine the number and the situation of the water-pipes in the city and its

* This provision was rendered permanent by a subsequent act

environs; a power which, as we have already remarked in chap. I., book I., is exercised by commissioners who are appointed by the corporation.

These commissioners are authorized to levy a tax on the inhabitants, to defray the expense of executing and supporting the works which they direct. Their powers are as extensive as those of the commissioners of sewers in the counties. Their jurisdiction extends over all currents of water, natural or artificial, which fall into the Thames, within the distance of about one mile and a half above or below the capital.

Aqueducts.

In the 3d year of the reign of James I., an act of parliament granted to the corporation and citizens of London, the privilege of undertaking and executing an aqueduct, called the *New River*, which was brought from two springs at Chadwell and Amwell to the capital. By this act, the corporation was empowered to purchase the ground necessary for rendering the aqueduct ten feet in width; and they were moreover authorized to visit and inspect the banks of the river at all times, and to send thither the workmen, horses, and carts necessary for executing or repairing the works.

In cases in which the purchases of ground could not be amicably adjusted, commissioners appointed by the lord chancellor were authorized to fix the indemnities to be paid to the individuals who had

sustained damage by having their ground occupied, the course of their waters turned, their mills rendered unfit for use, or diminished in value, *&c.* Of these commissioners, four were chosen out of the city of London, and four from each of the counties of Middlesex, Essex, and Hertford, through which the New River runs. They were to be possessed of landed property to the value of at least 40*l.* per annum, and were to form a quorum.

The corporation of the city of London could not take possession of the ground through which the canal was to be cut, until after having determined the price to be paid for it, either by amicable adjustment, or by the arbitration of the commissioners, appointed in the manner above described. If the owners of the ground were not paid according to the arbitration, they might prosecute the corporation in any of the courts of Westminster-hall. The corporation were bound to repair, at their own expense, all overflowings of the canal, and the damage that might ensure therefrom.

The New River being completed, is like all currents, whether natural or artificial, under the jurisdiction of the commissioners of sewers, in all that regards the management of the water. But the corporation of the city of London directs the works; and superintends, for the support of these works, the application of the funds, raised by the fines which are incurred through the violation of the police regulations to be observed along the canal.

In the year succeeding the grant for undertaking the New River, another act authorized the establishment of a second aqueduct, for conveying to London a part of the water of the Lee. The secondary object of this enterprise was to supply water to the western parts of London and Westminster. The principal object was to add to the endowment of a protestant Sorbonne which king James I., proposed founding at Chelsea, on the site now occupied by the hospital. Commissioners were also appointed for this canal, to proceed by arbitration in estimating the value of lands between the owners and the individuals engaged in the enterprise.

Supply of Water for Aqueducts.

The conditions attached to the supply of water are equally important to the companies whose business is to supply towns, and to persons engaged in navigation, who, whenever the current is made to branch off in any new direction, lose a portion of their means of conveyance. In consequence, the legislature has determined these conditions with the utmost attention. For example, we will describe the principal measures adopted in the reign* of Geo. II., in the year 1739, for regulating the supply of water for the New River.

The trustees of the navigation of the river Lee were empowered to establish a dam for collecting water between the bridge of Ware and the town of Hertford. The opening and closing of the dam,

as well as its support, afterwards came under the superintendence of the New River Company.

The water was to be collected on a spot specified by the act of parliament, through a narrow cut, the dimensions of which were determined. This cut, the height of which was also fixed, served as a guage for the water. It was six feet in breadth, and two in height. It was constructed of wood along the twelve first feet of its length, and was to be continued in brick-work, wood, or stone; but without any variation in its width or height. The company were prohibited from obtaining any other supply of water from the Lee.

To prevent the commissioners from collecting more water than they were permitted to do, they were required to keep in good condition, at their own expense, 1st, the bed of the river in the parts adjoining the cut; 2d, the dam, and the apertures for discharging the water, so that its upper surface above the dam migh never rise beyond the height fixed at the upper limit of the collected mass of water.

A machine called a balance engine was employed for ascertaining precisely the height of the water. This balance was surmounted by a structure which is kept by a person in the employment of the company. The trustees of the navigation of the river Lee were entitled to inspect as often as they pleased the engine balance, and the different works for forming the collection of water, in order to ascertain that all were in good order, and conformable with the stipulated conditions.

The company were declared proprietors of the water conceded to them. All persons were forbidden to throw into the currents communicating with the New River, or into the river itself, or any of its branches, any kind of rubbish, stones, filth, dead animals, animal substances, *&c.* It was declared unlawful to wash in the river wool, hemp, flax, or any other foul or unwholesome substance; to turn aside or impede the current, or take water from the river without the express consent of the company; or finally to commit any damage upon the works of the New River or its dependencies.

The New River Company were authorized to prosecute all per-

sons who might commit any of the offences or damages above mentioned.

The commissioners appointed to superintend the enforcement of the act, were, 1st, the lord mayor, the aldermen, and the recorder of London; 2nd, the members of parliament for London and Westminster, and for Middlesex, Essex, and Hertford, through which counties the Lee River runs; 3d, the mayor of Hertford, *&c.* Ten was fixed upon as the smallest number of the members of the committee necessary for forming a *quorum.* The trustees were to meet annually on the 6th of August in London, or in one of the three counties abovementioned, to adopt the necessary measures for the discharge of their functions.

It was the business of the commissioners to ascertain that the sums borrowed by the company were punctually repaid; and that the works for collecting the water were carefully kept in order, according to the dimensions and forms prescribed by law, *&c.*

CHAPTER II.

Preliminary Considerations on the Formation and Management of Canals in England and France.

What is the best plan for the formation, management, and preservation of canals? Should the execution and possession of these great public works belong to the government, or should they be intrusted to private industry?—These are questions of the highest interest; and, at the present moment, it is particularly important that they should be resolved by the *evidence of facts;* so that the zeal and attention of our ministry and legislative chambers may be directed to those measures which are most favourable to the internal prosperity of France.

Common sense must convince us, that by engaging numerous fortunes and interests in the execution of works of public utility, the combined efforts of a multitude of private individuals must produce results superior to the single exertion of the most powerful and wealthy administration. A government has such numerous and various demands to satisfy; it has so many losses to repair during peace, and so many sacrifices to make at every other time; it is so burdened by expenses which relate to personal interests, that it is ever inclined

to retrench the first expenses devoted to those national interests which do not so urgently speak for themselves.

These causes have operated more powerfully in France than in any other country. Hence the numerous public works which have been begun during one reign, and have been relinquished during the next; undertaken by one set of ministers, and destroyed by those who next came into power*. But when personal interest finds its advantage in erecting and preserving works, which are the more profitable in proportion as their utility is the more extended and permanent, the public benefit is guaranteed by the most durable of human passions, self-interest; and this public benefit is served at all times and in all circumstances,—in war as well as in peace,—during the prosperity as well as in the poverty of the state treasury.

I shall frequently have occasion to recur to these topics, to which I have already adverted in the in-

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* The canal of Briare, which was begun in the reign of Henry IV., was abandoned on the death of that great monarch, until near the close of the reign of Louis XIII., when it was determined to consign it to the management of a company, by whom it was finished in less than four years. As to other works of the same kind which were undertaken by the state at subsequent periods, some have lingered in their execution in a manner most ruinous to the public treasury and the persons engaged in them; others still remain unfinished, so that the capitals which have been sunk upon them have been hitherto lost to the country.

troduction to the present part of my travels. I feel it to be my duty to dwell on these points, convinced as I am of the necessity of continually setting forward the same facts, in order to bring obstinate minds to attend to the counsel which is most to their advantage; particularly when this counsel runs counter to inveterate prejudices and long established customs.

On the subject to which we are now directing attention, the results of experience correspond with the consequences deduced from speculative reflections, and also with the demonstrations of profound reasoning. The canals of England, which as well as the roads in that country, are executed in a manner so conducive to individual and public advantage, owe their existence, for the most part, to private associations. The British ministry not only permits the execution of public works by means of private associations; but it even presses forward to meet the zeal and resources of private industry with the aid of public credit.

In the *examination of the system of the British administration, for* 1822, we have pointed out the advantage of the course pursued by the English, by explaining their means of improving their finances and promoting internal prosperity:—

"The fourth measure adopted for giving increased activity to the circulation of money was to grant the loan of the sum of two millions sterling, in exchequer bills, to aid the execution of public works

by private companies. The British ministry regards the utility, and even the necessity of such a measure, as a fact universally acknowledged in England. It is notorious, says the historian of that ministry, that the reduction of the national expenses has thrown a great number of persons out of employment. Agriculture and manufactures, in their present condition, are not sufficient for restoring to activity the surplus of labourers. The government cannot relieve the distress of the unemployed, except by affording them occupation in the execution of works of public utility. If the government be unable to give, it is still able to lend. It may, without the risk of loss, lend large sums, either for longer periods, or at a lower rate of interest than private individuals can do, because it can *itself* borrow on more advantageous terms, by means of the superiority and extent of its credit.

"What a vast difference is there between the systems pursued by the English and French governments with regard to public works! The former grants loans to the public at an interest of 3 per cent., to enable them to execute themselves works which are useful to society. The latter borrows from the public, at six, seven, and seven and a half per cent., for the execution of works which that government *alone* conceives must be useful to the people.

"I venture to affirm, that the mode pursued by the British government is the most advantageous,

This assertion is founded on the testimony of men of the most weighty authority in the most opposite political parties. I refer to the speeches of MM. de Villèle, de la Bourdonnaye, Foy, and Girardin; to the administrative papers of MM. Fiévée and Laborde; and to the technical works of MM. Huerne de Pommeuse*, Dutens†, and Cordier‡. All acknowledge the great advantage of leaving works of public utility to be executed by the public themselves.

"We are aware that temporary causes and fortuitous circumstances may have compelled the French government to take upon itself the execution of works of public utility, by means of loans contracted with private individuals. We are far from entertaining a doubt on this point. But, for the welfare of France, we sincerely hope that such circumstances and causes may never again return.

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* In his *Treatise on Navigable Canals*, M. Huerne may claim the honour of having been among the first of those who called the attention of the legislative power and the government, to the important subject of canal navigation.

† M. Dutens, in his *Memorials on the public Works of England*, has furnished some excellent remarks on the subject of canals, as well as on bridges and roads.

‡ See the introduction to his *History of Inland Navigation*. We shall in the present chapter repeat some of the remarks which we made in the *Revue Encyclopedique*, for May, 1819, in rendering an account of M. Cordier's work, which reflects honour on the patriotism, as well as on the judgment of the author.

This is a point which materially and positively interests all Frenchmen, whatever may be their opinions or their political stations.

"The important results obtained by a rival nation must operate as a powerful stimulus to induce us to pursue a course by which we should be enabled to procure still greater results; and which will raise us to the highest eminence with regard to the execution, management, and improvement of works of general utility to trade, manufactures, agriculture, and navigation." *Examination of the British System of Administration*, in 1822.

In the introduction to this part of our travels, we have remarked that French monarchs have set an example to Europe on the subject of the formation of canals, and a just system of arbitration with respect to the property interested in these works. In a province constitutionally governed, like that which was known under the name of Languedoc, so celebrated for the beauty of its public works, the commercial and advantageous system of intrusting the execution of canals to individuals was able to be successfully applied. This system can only exist where liberty and property are respected. Thus, an important example of the good effects of this method is presented by the canal of Languedoc, which has so greatly augmented the prosperity of the south of France.

This canal has entitled Louis XIV. to the gratitude of all Europe. Foreign engineers (among others,

Phillips in his *History of Inland Navigation)* candidly avow, that the well-merited celebrity of this admirable monument called the attention of the sovereigns of other countries to the internal navigation of their states.

The great works executed during the reigns of Louis XIII. and Louis XIV., presented examples which did not remain without imitation in France. To the exertions of companies we have been indebted for the canals of Loing, Orleans, Picardy, Beaucaire, the Deule, the Lys, the Fontinettes, *&c.* If such enterprises could originate and prosper under an absolute government, when private interest was so ill able to contend against the despotism of the agents of power; what success may not be expected from the adoption of the same system under a constitutional government, which affords to every citizen, represented in the chambers, the sacred right of petition, and under which, thanks to the freedom of the senate and the press, every individual finds generous defenders, eager to demand justice in his behalf.

But ere we can look forward to the attainment of important results, we must break the numberless chains which the governments of the consulate and of the empire have bound on the members and the body of the state*.

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* On this subject we cannot do better than once more refer the reader to the works of MM. Laborde and Cordier. The latter, in treating more particularly of the subject which at present claims

Since the year 1800, when all powers were concentrated in Paris, the departmental and municipal administrations have not possessed the right of making the least essential decision. Not only in undertaking new works of inferior and wholly local importance, but even in making the most trivial repairs, it is necessary to draw up plans and estimates, to address them to the ministry, to wait for a tardy approval, to seek for a contractor, to treat with him, and finally to get the tender and the contract settled. What are the consequences of these long and numerous delays? Increasing decay of the public works; expenses augmented beyond the possibility of being defrayed. Then ensued the ruin of bridges and locks, the total suspension of navigation and trade, the dinution of the revenue of canals; and, finally, the scanty revenue arising from them became totally inadequate to cover expenses which might have been easily avoided. All these evils would be obviated by consigning to private companies the formation, the support, and the emoluments arising from canals.

Do we regret the alienation, in favour of a few in-

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our attention, courageously attacks the terrible chaos of laws and decrees transmitted to us by ten successive governments, all of which have been raised out of the ruins, while each has been indebted for its existence to the ignorance, despotism, and injustice of the one that preceded it. M. Cordier also shews how the engineers of roads and bridges might be employed more actively, and in a way more advantageous to themselves and the public, in planning and directing works executed by companies.

dividuals, of property which may be rendered free and gratuitous to all? We may adopt a system which has often been pursued in England, with regard to the construction of bridges; namely, to grant permission for the levying of a toll, which must cease, when all expenses being paid, the surplus of the revenue, *lodged in the public funds*, shall have produced a capital, the interest of which is sufficient for the support of the works.

M. Cordier argues powerfully against the impediments which military authority raises against all plans of navigation in the numerous departments which form the territory of France. The following is an analysis of his ideas on this important subject.

When the engineer in chief of any frontier department draws up a plan for a road, a bridge, a canal, a lock, *&c.*, he must first send this plan to the colonel of military engineers, whose direction is in the district where the proposed works must be executed. But as there is no connexion between the departmental division and that of the military stations, the same colonel of engineers is frequently obliged to discuss a plan with the engineers of the bridges and causeways of two or three different departments; and reciprocally an engineer of bridges and causeways is forced to defend his plan in opposition to two or three directors of fortifications. Now these officers, who are perfectly independent of each other, taking their grounds according to their own respective powers, and judging according to their own particu-

lar knowledge, scarcely ever come to an understanding together. The matter is referred, according to custom, to a committee at Paris. Then arises the conflict of different pretensions; and without any acquaintance with the situation or localities, an irrevocable decision is pronounced on a plan which has been the result of deep consideration, and in which the author, by attentive calculation has endeavoured to surmount the difficulties which the projected site may present.

These inconveniences are felt at all times, because they depend on permanent institutions. In times of war and trouble there is another scourge which assails our public works; it is an evil which can never exercise such an influence in England; this evil is the poverty of the treasury. In most nations war interrupts, or at least delays the execution of works of general utility, the expense of which cannot be defrayed by a treasury overwhelmed with debt; but in Great Britain, war, by the activity which constitutes its essence, imparts a new impulse to public works. By consigning these works to the enterprising spirit and the activity of individuals, the British government substitutes for the temporary efforts which it might be enabled to make by a superfluity of taxes, the permanent efforts of the public at large, in furtherance of their own interests, of which they are well qualified to judge. Thus from 1790 to 1805, an interval which included four years of peace and eleven years of war, upwards of 1500

miles of canals were cut in England alone. This is about one half of the total length of the canals which have been undertaken within the period of 60 years.

How different was the progress of our public works during the same period. In the long and peaceful reigns of Louis XV. and Louis XVI., numerous works of general utility were undertaken, some by the government, and others by provinces, cities, and companies. The revolution broke out—the rights of property were violated—these works were declared to be the property of the state; they were taken from their lawful possessors, their revenues were consumed, and their repairs wholly neglected. These sources of wealth, so shamefully usurped, were soon exhausted; and then ensued the stagnation of many branches of trade and the ruin of whole districts. It is gratifying to be enabled to add that a succeeding government has exerted all its efforts to obliterate every traee of these mischiefs.

Without stopping to advert to the period when the ruin of private fortunes and the immense burdens incurred by the national defence, exhausted all the resources which might have been applied to public works useful to trade, we will confine our remarks to a period of peace and prosperity. Since the close of the war, during the most flourishing state of our finances, government has not been able to devote to public works, more than the annual sum of thirty-one millions of francs, which is insufficient even for their support. To commence new canals,

or to complete those already begun, government has contracted a loan to a large amount, the interest of which is to be paid until the final reimbursement of the capital. What then can be done in time of war, particularly if the conflict be prolonged, if reverses be mingled with success, and great sacrifices be required? The necessity of economizing the money appropriated to useful enterprises in the interior, will lead to the retrenchment of the moderate sum destined for bridges and causeways. These works will fall into decay, and their decay must necessarily augment the difficulties in which our trade and manufactures will already be involved. All these evils would be adverted by gradually intrusting public works to the management of companies, who, in time of war, as well as during peace, would naturally direct their efforts and their attention to the preservation of those objects from which they obtain emolument.

Having endeavoured to point out the advantages which a government and society in general derive from the plan of consigning public works to companies, we will make a few remarks on the benefits which this system secures to individuals. In England it is remarkable how many persons present themselves as subscribers to any new canal. Their number frequently amounts to more than 200; and yet the majority are not capitalists. The proprietors of ground, of mines, or of manufactures, in the vicinity of the course of the projected canal, calculate,

in the first place, according to the outlets presented to them, the more extended sale and the increased value of their agricultural and manufacturing produce; advantages which indeed are far superior to the profit most of them will derive from their shares in the proposed canal. This is a happy spirit of foresight and calculation with which it is necessary to inspire our landowners, proprietors of manufactories, *&c.*

In France it is complained that fortunes are too small; and it is believed that in England all the laws tend to favour large property. But, with respect to the subject at present under consideration, the English laws have, on the contrary, done every thing to favour small property. Any individual possessing a capital equivalent to 100*l.* may not only become a shareholder in a bridge, a canal, or a dock, but if he possess only the half, the fourth, or even the eighth of this small capital, he may still become the owner of a portion of any of these works. This excellent law seems to be admirably well calculated for France: in adopting it, however, we must be careful to proportion the price of shares to the moderate amount of our fortunes, and also to the difference in the value of money, which is greater in France than in England: for example, 300 or even 200 francs might be sufficient to enable an individual to become a member of a company of any public work—we might form companies of 500

1000, or 2000 small capitalists, or even a greater number if it were deemed necessary. For this kind of speculation we might have our *petit-grand-livre*, as we have our *grand-livre* for property in the public funds; by this means we should interest large, middling, and small fortunes in the good construction and proper support of our public works necessary for commercial transport.

In the present state of things, when it is proposed to purchase ground for the execution of public works undertaken by the government, it is justly complained, that the arbiters appointed to value these grounds raise their estimates to the most extravagant amount. The prevailing idea seems to be that a sum wrested from the treasury is always *so much advantage gained over the enemy. (Autant de pris sur l'ennemi.)* If public works of general utility become the patrimony of citizens; if landed proprietors and capitalists, or their connexions, become chiefly interested in these works, the extravagance of these estimates by favour, will be found far less natural and just; and public opinion would itself correct the evil which it now contributes to keep up.

The system of establishing canals, by permission granted to companies, has been opposed by sophisms, which it is essential to refute for the interest of our country and our government. It has been affirmed, that in France, there are too few companies capable of undertaking great canals; that the

utility of these enterprises is not generally enough understood; that it would be difficult to foresee how far such speculations would be profitable, *&c.*

Doubtless, if it be determined to treat only with opulent shareholders, very few companies will be found, because the number of great capitalists is extremely limited in France. But if it be wished to place shares within the reach of persons of the most moderate fortune, companies will soon be established; and they will be as numerous and as rich on the whole, as the most ardent promoters of French industry can desire.

Instead of asserting as a fact the present incapacity of French speculators, (an assertion which we positively deny), would it not be better to furnish them with the means of acquiring information, and of enabling them to take an accurate and enlarged view of their own interests, combined with the interests of the public.

Though many opportunities of improving the information of the industrious classes have already been suffered to escape, government may yet render immense service to the people, by inviting the principal landowners in the districts through which canals are to be cut, to meet for the purpose of discussing together the advantages of these useful works. Other meetings might also take place on the invitation of the public authorities, at which the most distinguished merchants and manufacturers might develop, under a new point of view, the re-

spective advantages of landed or manufactured property, and of neighbouring or distant trade. Finally, the estimates of expenses, drawn up by the engineers of roads and bridges, would at once enable landowners, merchants, manufacturers and capitalists to balance, on the one hand, the expenses at the *maximum* of valuation; and, on the other, the receipts and profits at the *minimum* of their supposed produce. The results of these investigations and deliberations would be published in all places; and the best tribute of praise to works of merit would be the shrewdness of the views, and the accuracy of the calculations, to which they might give rise. The mass of the people would place full confidence in the estimates made by a select portion of the public; and subscribers would not be wanting for enterprises, the public and private advantage of which would be proved by the suffrages of the wealthiest and best informed portion of the landowners and manufacturers.

By this means, many individuals would be enabled to improve their fortunes; and the spirit of calculation and association, which would be diffused among the thinking portion of the public, would shew the advantages to be derived by each individual from works of general utility; would accustom men to communicate to each other their observations, views, and plans; and would guide their judgment by the information derived from discussion. Meetings thus formed for the sole purpose of deli-

berating on commercial interests could not give umbrage, even to the most suspicious government. They would present none of the objections that may be urged against meetings, which, without any legal authority, are held for the purpose of discussing political questions; while, at the same time, they would present all the advantages of political meetings, by encouraging reflection and discussion, and teaching men to develope their ideas with clearness and facility. Every one would be enabled to form an opinion of the merits of those individuals, who, stimulated by zeal and talent, wish to come forward and gain by real services the approbation of their countrymen.

When our electoral assemblies afterwards came to nominate individuals to support our most important interests, public favour would already be fixed on those men who might have distinguished themselves for superior intelligence, uprightness of conduct in the management of local affairs, maturity of experience and judgment, and the valuable advantage of being able to present just ideas and elevated views, in an easy, clear, and powerful manner. The public choice, instead of being the effect of chance and caprice, or the result of unfounded celebrity,—the reward of the mere talent for talking, or ignorant assurance—would be the recompense of services already rendered, and the stimulus for performing new ones.

I must beg forgiveness for having thus long dwelt

on the affairs of France, in a work which professes to treat of England only. I am not, however, departing from my subject, when I speak of the direct interest of any country. It is by a secondary consequence of this interest, that I seek to examine how far our rivals, who at first slowly followed our footsteps, have got the start of us, and have left us to endeavour to outstrip them in our turn. I study and describe what foreigners have done, as though I were speaking of future France.

CHAPTER III.

The Undertaking and Management of Canals.

IN Great Britain, as we have before observed, the canals, roads, and bridges, are generally executed and managed by private persons; sometimes even by a single individual. The few works of this nature which government have undertaken at their own expense, have been by way of exception, and for reasons of state.

In thus intrusting to the citizens these undertakings of general utility, the legislature has, however, reserved to itself the privilege of granting the previous sanction; to obtain which, it is necessary to adopt certain formalities. These, though very important, have never yet been described in any work relating to England. At my request, Mr. Telford, a celebrated engineer, to whose public services I have already alluded, in speaking of the roads of Wales and Scotland, and whose excellent works I shall frequently have occasion to mention, has been good enough to draw up an abstract of all the formalities observed in the establishment of companies who undertake the execution of public works useful to trade. I need only repeat a statement traced by so able a hand.

I. If any individual should conceive that the construction of a new canal, a bridge, or a road, would be advantageous to the interests of the county in which he resides, he communicates his views to other persons, who assemble to consult on the subject. If the idea be approved, a plan of association is drawn up, and submitted to those individuals who possess the greatest influence in the county, and who would consequently feel most interested in the execution of the projected work. If the plan be approved, a general meeting of the persons who are most immediately interested in it is convoked. The object of this meeting, which is advertised in the public papers, is to discuss publicly the proposed undertaking; which is abandoned, if the majority should decide against it. If, on the contrary, the majority declare themselves in favour of the plan, a subscription is opened to meet the preliminary expenses. A preparatory committee is appointed, whose immediate office is to direct the execution of the plans, to calculate the expenses, and to draw up the necessary reports.

II. For these purposes, the preparatory committee immediately employs surveyors and engineers, whose report, together with the evidence on which they are founded, are laid before the second general meeting of the subscribers. These plans being discussed, and definitively approved, the committee pursues its labours. In cases where a work of great magnitude is to be undertaken, it is

sometimes thought proper to employ several engineers in competition. Their plans are compared, and that which seems best is selected from the others. Of course, the expenses are augmented in proportion to the number of plans that are executed; but it is obvious that great benefit must be obtained from the emulation thus excited among men of talent, who, on such occasions, exert every endeavour to raise their reputation, or at least not to allow themselves to be lowered in the public esteem.

III. As soon as a plan is decided on, the preparatory committee directs the surveyors and the engineers to execute several copies of it, together with sections of the projected works, and of the lands through which they are to be carried. These are to be accompanied by a list of the counties, parishes, towns, and villages, and of the proprietors and tenants of each estate and dwelling-house, the possession or convenience of which may be affected by the plan. A duplicate of this list, which is divided into three columns, marked with the words, *assenting*, *dissenting*, and *neutral*, is forwarded to each proprietor, who signs his name in which column he pleases. Previously to making any application to parliament, and on the 30th September, at the latest, a copy of the same list must be forwarded to the office of the justices of the peace of each county, within which any part of the proposed works will be included.

The direction and situation of the road, canal, or bridge, are announced in the London Gazette, and in one of the newspapers of each county in which the intended work is to be executed. This announcement is also placarded on the door of the court of justice, during the sitting of the autumn assizes in the same counties.

IV. The preparatory committee, with the assistance of its engineer and law solicitor, makes a draught of the bill which is to be presented to parliament in the ensuing session. This draught is submitted to the general meeting of the subscribers. If it be approved, a petition is addressed to the House of Commons praying for its reception; which is not granted until the house has satisfied itself by means of a special committee, that the petitioners have in all respects observed the forms prescribed in its standing orders. These forms being fulfilled, the bill is received, and read for the first time. A certain number of days must elapse before the second reading of the bill, on which occasion every objection that can possibly be raised against it is set forth. The bill is frequently rejected on this first debate; but if not, it is referred to a special committee appointed to examine it clause by clause. Before this committee proceeds to the critical examination with which it is intrusted, a copy of the bill is sent to each county in which the line of works is included, and deposited in the office of the justice

of the peace belonging to each of the parishes included in the plan, where it is open to the inspection of any person desirous of seeing it.

Meanwhile, the committee of the House of Commons meets to discuss the bill. The objections raised against it are sometimes of so serious a character, that it is found necessary to reject it. If, on the contrary, the bill be approved, the committee makes its report to the House of Commons. After the lapse of a few days, the house proceeds to the third reading of the bill; it is again discussed, and if it obtain the majority of votes it is passed. It is then carried to the House of Lords, where it goes through the same formalities of previous examination, readings, and debates. At each step of its advancement, it is liable to a final rejection. At length, if the peers approve it, and it receive the royal sanction, it becomes an act; it is a part of the law of the land.

The difficulties and objections which may be raised against every act introduced in this way, are so varied and so numerous, that it is not easy to give a distinct and complete idea of them. Some individuals found their opposition on their notions of the inutility of the project; others on the impossibility of obtaining a sufficient revenue to reimburse the expenses. Some are afraid that the new plan may be prejudicial to certain works already executed; others feel annoyed that the line of operations does not pass through

places which would better accord, either with their ideas or their interests; or that it passes too near their residences, or intersects some of their enclosures or cultivated lands. Some oppose the plan, merely because it has originated among men whose political opinions differ from their own; and finally, there are some, and those in no small number, who reject the plan, simply because they are averse to new projects of every description.

The opponents of the bill first try their strength in the county meetings. If they fail in this way, they turn their views towards parliament, and endeavour to form a party there. To obtain this object, they frequently engage counsel, who are heard, not only before the committee, but at the bar of each house. On those occasions, sometimes the whole of the bill, and sometimes its weakest parts are attacked and discussed with considerable warmth. These debates not unfrequently last for months together; and it sometimes happens, that a bill which has been rejected in one session, is brought again before parliament in a succeeding one, and triumphantly passes. Such are the principal circumstances which attend these discussions.

As soon as the act of parliament is obtained, a general meeting of the subscribers, who are declared proprietors by the act, is convoked. All the operations which it will be necessary to adopt are then discussed. A managing committee of works, a secretary, a treasurer, an engineer, and all the

other persons, whom it will be requisite to employ, are appointed and directed to commence their operations.

Correct and detailed plans are then prepared, and the works are parcelled out into divisions and subdivisions. The distribution of these lots is announced in the public papers; they are given to those who will undertake the works on the lowest terms. The tenders are sent in under a sealed cover. On the day named in the advertisement, the seals are publicly broken, and then, those individuals who do not offer sufficient securities, being withdrawn by the special deliberation of the managing committee; each lot is adjudged to the person who agrees to contract for it at the lowest price.

In forming these contracts it is stipulated, 1st, that the contractor shall personally assist in the execution of the works; 2d, that the operations shall be submitted to the superintendence of an inspector appointed by the committee; 3d, that such part of the works as may be completed shall be measured every month, when seven-eighths of the expense shall be paid without delay; the remaining eighth, bearing interest, lies in the hands of the managing committee, until such time as the terms of the contract shall have been duly fulfilled. On the definitive certificate of the engineer, the whole amount of the sums retained is paid off.

The contractor is required, before he commences his operations, or at least before he receives

any payment, to furnish securities to a certain amount.

The works being completed, their support, the receipt and employment of the revenues they produce, and, in a word, all the interests of the company are superintended by a managing committee, whose operations are subject to the inspection of a general meeting, held every six or twelve months, as will be seen in the following chapter.

Such are the means by which the English have, for half a century back, executed a great number of works of immense utility; and these works have inspired the present generation with a taste, habit, and talent for the discussion of general affairs.

After a short time has elapsed, the management of the interests of a free company fall, as a matter of course, into the hands of a small number of the most active and experienced members. But as every member of the company has a right to partake in the discussions, and give his vote in the decisions, each preserves his influence and his importance; each becomes imbued with the general spirit of the society; each becomes better informed and more capable of rendering himself useful, than if he had never taken part in deliberative assemblies. By this means, as we have already remarked, individuals of all ranks acquire a knowledge of the character and talent of the most distinguished men; while mediocrity, being unable to conceal itself, is soon estimated as it deserves.

Thus the discussion of mere personal and limited interests, by qualifying men for the discussion of the great interests of a whole nation, raises them above the multitude, and marks them out as objects worthy of the esteem, confidence, and suffrage of their fellow citizens. We cannot too strongly or too frequently dwell on the advantages presented by meetings of companies engaged in works of public utility.

As to works which are executed at the expense of the state, they are regulated by act of parliament, and are subject to all the measures and discussions which have been mentioned in this chapter; only that the expense of their execution is voted out of the public revenue. The management of these works is intrusted to a committee, whose members are specified in the act of parliament, and who discharge their duties gratuitously. This committee in general consists of members of parliament, magistrates, and wealthy individuals who have some particular connexion with the district in which the works are to be executed. But whatever be the importance of these works, they form mere exceptions to the general custom of the British nation; where the execution and the improvement of works of public utility are best attended to, when they are consigned to the management and superintendence of private individuals.

CHAPTER IV.

Acts relative to Canals and Aqueducts.

THESE acts, like other laws of the British Parliament, are tediously long, and are drawn up without any regard to arrangement. In order to point out in a methodical and concise manner, the most remarkable provisions of these acts, we will successively examine all that relates to duties and powers, shareholders and their general meetings, the managing committee and its operations, the commissioners and the juries of arbitration, and finally, the purchase and sale of ground.

Duties and Powers.

The act which authorizes the establishment of a company explains, in the first place, the grounds of public utility on which it is passed—namely, facility of communication between important towns; economy in the conveyance of coal, manure, agricultural produce, *&c.*; the increased value which the new line of navigation will give to the property in its vicinity; and sometimes the necessity, or merely the advantage, of conveying supplies of water to towns, and particular places.

The act contains a list of the names of the members of the company, whom it declares to be perpetual proprietors of the canal. It authorizes them to make common stock of the funds required for the undertaking; to bring and defend actions in courts of law, as a corporate body; to purchase the ground over which the canal is to be carried; to execute the works which may be required for the new line of navigation, as well as for conveying water for the supply of certain towns.

Next come the details relative to these works. If it be necessary to cut through a road, or to render it impassable in any part, the company must, in the first place, make a new road as near as possible to the old one, and keep it in perfect repair. To establish communications between the canal and the neighbouring public roads, they must make new roads, and keep them in repair at their own expense.

The act of parliament determines the depth of the canal, and the height to which the water must rise. In certain situations it directs the construction of *off-lets* or waste channels*, to prevent the canal from receiving more water than the act permits.

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* When the millers are interested in collecting the surplus water, they choose a surveyor, who, acting in concurrence with the company's engineer, directs and superintends the execution of the off-let. If they cannot agree, they appoint, as an arbiter, a third engineer, who examines the off-let as often as he thinks fit, to see that it is kept in good repair, and in a state conformable with the provisions of the law.

If the projected canal be intended to supply any other aqueduct, the points from which the water is to be conveyed are also specified in the act of parliament.

The act determines, 1st, the general breadth of the canal with its towing path, and the ditch which runs along the side of that path; 2d, the width of the places where it is necessary to dig beyond a certain depth; also, the places where creeks and basins are to be formed for the convenience of the meeting and the turning of the boats, as well as for their being laid up.

The act also fixes the situation of the basins, quays, warehouses, and of every other establishment to be formed by the company, for the trade of the canal. Proprietors of the adjoining lands, provided they do not obstruct the towing path, and the navigation, may also dig creeks and basins for their own boats, throw bridges over the canal, make roads terminating on the line of the canal, and build on the same line quays and warehouses, furnished with engines for loading and unloading the boats. Neither the company nor the public can make use of those quays, warehouses, and engines, without the consent of the proprietors.

Works.

The company must make and keep in good repair, 1st, the pipes, gutters, and ditches necessary for

carrying off, into the canal, or under it, the waters which might inundate the neighbouring grounds; 2nd, the watering-places which existed before the undertaking commenced, *&c.* In case of negligence in this respect, every farmer or proprietor who sustains damage, may apply for redress from the company. If the damage be not repaired at the end of three weeks, he may apply to five commissioners, who are arbiters, who will authorize him to make the repairs himself without further delay. These commissioners regulate the expense of the repairs and make the company pay it.

The company causes the ditches of the grounds adjoining the canal, to be cleared out at the expense of the proprietors or occupiers, who, for two months after having been summoned, have neglected to cleanse the said ditches themselves.

Shares.

The act of parliament fixes, 1st, the amount of the company's stock, and the amount of each share; 2nd, the *minimum* and the *maximum* of the shares, or portions of a share, which may be held by a single individual (except in the cases of marriage and inheritance.) The supernumerary shares fall to the profit of the company.

The law provides for the payment of the shares of a deceased partner, by his heirs; it indicates how the real proprietor is to be recognised in the case

of transmission of property, occasioned by a change of civil condition, by bankruptcies, or by absence, *&c.*

Every partner may transfer his shares, when and to whom he pleases; but if he sell a share, without having paid the demands made upon him by the managing committee, it is forfeited to the profit of the company.

It is surprising that canal shares have not been made real property by the British legislature. In France they ought to be considered as landed property.

General Meetings.

These are the legislative assemblies of the company. They make local regulations called *by-laws.* They are usually held once a month, on a day, and at a place, advertised in the newspapers of the district through which the canal passes. They may adjourn on fixing a day, and place, for a new meeting. They decide by a majority; but it is necessary that the members present should exceed a certain number, which is fixed by law. At each meeting the shareholders choose a chairman, who has a casting vote when the opinions are equally divided. Every partner has one vote per share, if the whole number of his shares do not exceed a certain value. Finally, a shareholder may vote by proxy, provided the proxy be himself a shareholder; but the number of absentees, whom a proxy may represent, is limited.

The general meeting causes a list of the names to be made out, and transcribed in a register, according to the order and number of the shares. An extract from this register given by the secretary, and bearing the seal of the company, is legal evidence in courts of law. In order to give a purchaser a legal title as a shareholder, the seller must procure a regular entry of the transfer of his share on the register, for the interest and the dividends are only payable to the persons whose names are inscribed on the register. If a question arise with respect to the property of a share, each of the claimants appoints an arbiter, and a third is appointed by the secretary of the company. These arbiters determine whether the name of the old proprietor is to remain in the register, or the name of the claimant to be substituted in its stead.

The general meeting is empowered, for the purpose of completing the company's stock, to raise loans, by mortgage, on the property and revenue of the canal. The secretary of the company enters these loans in a book to which the persons interested have at all times free access. The creditors created by such loans cannot be considered as shareholders.

It is also by the general meeting that the managers, the secretaries, and the principal agents of the company, are appointed and dismissed; that the receipts, and expenses, are finally examined; that every person acting for the company may, at any

moment, be called upon to give up his accounts; and that the necessary regulations are made for securing responsibility, for the management of the works, the superintendence of the navigation, and the penalties by which the company punishes infractions of the police regulation of the canal. These rules are printed; they are referred to as authority in courts of law, in so far as they are conformable to the laws of the realm, and particularly to the act for establishing the canal.

Managing Committee.

This is the executive power. An account of all its transactions must be given to the legislative power, that is to say, to the general meeting, which makes the laws by which its conduct must be guided, and which fixes the expenses of the administration.

The duties of manager are performed gratuitously; they cannot be intrusted to any agent of the company. The act of parliament fixes the *minimum* of the number of managers; their decisions are made by a majority of votes, a specific number of members being present; each member has only one vote, whatever be the amount of his shares. When there is an equal division of opinions the chairman has a second or a casting vote.

The committee appoint and dismiss all the inferior agents. Every quarter, or at least, every half year, they examine the accounts of the treasurers,

compare them with the company's books, strike the balance, and certify it, In the case of the supercession, the dismissal, or the decease of a treasurer, or of any other accountable officers, the persons superseded or dismissed, or the heirs of the deceased, must, within twenty four days after being cited, present to the commmittee the books, accounts, and papers of every kind, under pain of paying fifty pounds sterling as a penalty for each refusal.

The committee make purchases of land and of materials; they sanction the contracts for labour. The checks for payment which they deliver, the accounts of the expenses and the receipts, the plans and the contracts, are carefully transcribed into books kept in their office. Any shareholder may inspect these books whenever he pleases.

In order that the funds of the subscribers may not remain unproductive, the committee fix the payment by small instalments; for instance, they require in the first place only the tenth of a share; they wait until this sum be exhausted before they demand a second tenth, and so on with the rest. The law fixes the *minimum* of the time which must elapse, 1st, between the different call for funds; 2d, between the advertisement of each call inserted in the public papers of the district, and the payment of the sums demanded. Thus the shareholders have only very inconsiderable sums to pay on each instalment; they are besides allowed all the necessary time for paying them.

If any subscriber neglect or refuse to pay at the period legally fixed, the committee may institute an action against him. If within three months after the order to pay, a subscriber has not complied therewith, the whole of his shares and the benefits arising therefrom are forfeited and divided among the rest of the shareholders. But it is necessary that notice should be served on the subscriber so refusing or neglecting, and published in the newspapers.—Finally the forfeiture must be in consequence of the order of a general meeting.

Sub-Committees.

If the business is more extensive and various than the managing committee is able to transact, sub-committees are instituted, to which certain departments are delegated; but the managing committee can alone give orders to the general agents, the treasurers, the secretaries, the engineers, *&c.* This committee also retains the right of suppressing the sub-committees and removing the members thereof, who have forfeited their confidence. The sub-committees are governed by the same rules as the managing committee. They decide by a majority, and they leave the chairman a casting vote.

Arbitrating Commissioners.

These are appointed by name in the act of par-

liament, as a grand jury, and frequently consist of more than sixty members. They are selected from amongst the most respectable inhabitants, to decide between the company and the proprietors on the banks of the canal. They must, 1st, reside in one of the counties interested in the canal; 2d, be holders of real property, producing a certain revenue, or proprietors of a proportionate capital; 3d, fill none of the lucrative employments under the company; 4th, have no interest in the canal, nor in the affairs submitted to their arbitration, They are required to make oath that they fulfil these conditions under a heavy penalty paid to the company, and the expense of the process. If a commissioner die, or resign, or cease to inhabit one of the counties through which the canal passes, his colleagues must meet and elect a successor by a majority of votes.

If the commissioners neglect to complete their number and remain under the *minimum* fixed by law for arbitrating, the company apply to the justices of the peace, who are in such cases authorized to fill up the vacant places. Every justice of the peace may himself be a commissioner. If a moiety of the shareholders, or merely one owner, or one occupier of the land appropriated to the canal, address a written requisition to three arbitrating commissioners to call a general meeting, they are bound to comply therewith, within the next seven days. This meeting must take place within twenty-one days at the latest from the date of the order for calling it,

which must be advertised in the newspapers of the district fourteen days previous to the time fixed by the commissioners.

The place of the meeting at which any question respecting landed property is to be agitated, must not be more than two miles from the spot of ground in litigation. The arbitrators on assembling, choose their secretary from among three candidates presented by the company, by whom the salary of the secretary is paid, and they cause him to enter in a particular book the minutes of their deliberations, which all the commissioners are bound to sign.

In this manner the commissioners value the property acquired by the company, and the indemnities to be paid to the owners and occupiers of lands which may have been damaged by the company's works, or by the overflowing of the canal. They are bound to decide according to the evidence of respectable witnesses, who make their depositions on oath. If one of the parties object to the arbitration, the sheriff summonses a jury of twelve*. The commissioners may require this jury to hear

* The sheriff who should refuse or neglect to summon the jury when required, is liable to a penalty not less than 20*l.*, nor more than 50*l.* A juryman who should refuse to discharge his functions, becomes liable to a penalty of 5*l.* Every witness summoned to give his testimony on the questions in litigation pays 5*l.* if he neglect to appear. These penalties, which are fixed by the commissioners, are applied to indemnify the persons who, in consequence of the absence of the offender, may sustain loss or damage.

the witnesses they summon, and to visit the spots in litigation before they fix the sum to be paid by the company. The commissioners afterwards exercise the office of judges, and order the verdict of the jury to be executed.

False testimony, given intentionally, before the commissioners, the jurors, or the judges, on interests relative to the canal, is punished as wilful perjury.

The commissioners are empowered to allow to the jurors and the witnesses, a compensation for their loss of time, and for their expenses. This allowance is paid by the company, if the offer which they made to the other party be inferior to the value fixed by the jury; it is payable by the proprietors, if the offer which they refused to accept be greater than the sum granted, in consequence of the trial. The same regulation holds with respect to roads.

To prevent this regulation from being defeated, every proprietor, who in order to obtain a higher valuation for his land, wishes to bring the company before a jury, must, in the first place, produce to the treasurer of the company two sureties, who shall bind themselves to pay a certain penalty, and the expenses of the process, if the verdict of the jury be not for a larger sum than the company's offer. This is an excellent regulation and ought to be adopted by us.

The valuations of the commissioners and the jurors are entered in a book kept in the office of the

clerk to the magistrates of the district wherein the dispute arose. This record may be inspected upon paying one shilling.

It belongs to the commissioners to decide on the towing paths, on the quays, and the warehouses, which are required by the company as necessary for the canal, and which must be constructed on grounds, the property of individuals. If within six months after notice given, these individuals do not execute the required works, the company is entitled, in spite of all opposition, to take possession of the ground, indispensable for such constructions. However, buildings, courts of houses, and avenues leading to them, parks, gardens, and enclosures, cannot be taken without the consent of the owners.

The Company's Purchases.

The principles adopted on this subject in England may furnish useful hints for our legislation on public works. They are in substance as follows:—

The company must continue to pay the same taxes* as the former possessors on all the lands which they acquire.

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* If the canal pass through infeoffed land, that part of the canal remains subject to the charges on the land; unless the lord of the manor agree to the redemption of such charges. The company must indemnify the proprietors of tithes on the ground which they acquire. The ecclesiastical revenues are converted into perpetual rents. Fortunately for us these two points have nothing in common with our laws.

When they purchase only a part of a piece of land, if the owner of the remainder agrees to take upon himself the payment of all the taxes, present and future, the company are legally relieved from that charge. Besides, the canal with all its accessories, considered as the acquisition of the company, is independent of any public or private jurisdiction and of the laws relative to water-courses, which come under the jurisdiction of the public.

The company acquire the right of property over all the grounds which fall within the breadth of the navigable line *, fixed by the act of parliament, and the detailed plan accompanying it, and which are specified in the lists of *assent, dissent*, or *neutrality*, prepared from the beginning. But the company cannot deviate from the line marked out in the plan, and the descriptions submitted to parliament, unless they obtain the written or formal consent of each proprietor of the grounds, comprehended in the new line.

The act of parliament authorizes the king, corporations, guardians, husbands, testamentary executors, trustees, *&c.*, to deliver up without delay the public or private property intrusted to them, and which may be necessary for the formation of the canal, or the works depending thereon. The law permits them to alienate all such parcels of land as may be detached or divided by the canal in such manner as to render the working thereof difficult and expensive. Moreover, if lands be separated by the canal into such small portions, as to have on each side not more in superficies than two acres, or sixty feet in breadth, whatever may be their length, and if the owner have no contiguous property, he can oblige the company to purchase those parcels of land at the same rate as the part occupied by the canal. To prevent disputes and actions at law, the company may purchase any piece of ground liable to be damaged by the works, and may sell it

* If on this line there be grounds, the names of the proprietors of which have been omitted, or improperly engrossed in the act of parliament, on proof of such errors, by the commissioners, they are without difficulty rectified.

again, giving the preference to the former possessor. The owners of land and their representatives are authorized to claim indemnity for all damage and loss occasioned by the construction of the canal. They are entitled to levy such indemnity from the tolls, and even to seize the boats and merchandise of the company, if the liquidation of the debt be delayed.

The company cannot take possession of land, until after payment of the price stipulated, either by an amicable agreement, or judicial decision. If the owner refuse to receive this value, or if he cannot be found, or is unknown, the company pay the sum into the Bank of England, or keep it in their own hands, on giving proper security.

The company must pay into the bank of England all sums exceeding 20*l.* due to corporations, or to persons who do not exercise their right of property, such as minors, *&c.* If the sum be below 20*l.* it is placed at the disposal of the administrators of the property, to be by them employed in the most useful manner.

If the lands are mortgaged, the company is authorized to pay the capital and interest thereon to the holders of the mortgage; but six months previous notice must be given of the intention so to do. On the refusal of a creditor to be paid off in this way, the interest on his mortgage is disallowed, and the company is relieved on paying the sum refused into the bank of England.

When more than ten years have elapsed after the purchase of the ground, without the canal being finished, or when more than five years have elapsed from the termination of the works, the proprietors may resume possession of their lands, on paying to the company a sum, estimated by arbitration, and which cannot exceed the price of the original sale. To give precise ideas on this subject, the numerical values mentioned in this chapter, have been copied from the act of parliament for instituting a particular company; that of the Croydon canal, which M. Cordier has translated and published.

BOOK III.

ESTABLISHMENTS OF ROADS, STREETS, &c.

CHAPTER I.

Establishments of Streets and Paved Roads.

On visiting the squares and streets in the great towns of England, the traveller is struck with the cleanliness, propriety, and arrangement, which they exhibit. We have already explained the legislative measures to which the towns of Great Britain are indebted for these advantages. We may add, that the arrangements of the houses and their dependencies, are in the highest degree calculated to combine with the essential objects of a good system of street regulation.

In the best parts of the principal towns in England, the fronts of the houses are separated from the street by an area, surrounded by an iron railing; and this railing is separated from the horse-road by a broad foot-pavement. Thus the walls of the houses are not disfigured by dirt and splashes, as is the case in the towns of France.

It would be highly advantageous to adopt in our

towns the plan of making foot-paths, not like those on our quays and bridges, but paved with beautiful flag stones, which are always clean and never fatiguing to the pedestrian. Care should be taken not to lay down these flags at the edge of the pavement, (as has been done in the Rue des Coquillis), because the carriages passing over them, force them in, and in wet weather, occasion puddles.

Projecting entrance gates, which obstruct the line of the foot-path in France are scarcely ever to be seen in the towns of England. A few narrow passages, at the back of the principal streets, lead to ranges of stables and coach-houses, which are on all sides surrounded by buildings, and are wholly detached from the thoroughfares for foot-passengers and carriages. By this excellent arrangement, the houses of gentlemen are entirely kept free of the noise and dirt, to which our mansions are exposed through their vicinity to coach-houses and stables. It were to be wished that this plan of separation were adopted in the elegant parts of the towns of France.

In the most modern parts of London, the extensive proportions of the streets, present the imposing appearance of a great capital. In Oxford-street, which is more than a mile in length, five carriages may drive abreast, between two broad foot pavements. These dimensions are indispensable in the most commercial city in the world.

A part of the Rues Saint-Honoré and Saint-

Antoine, the Rues de Rivoli, de Castiglione and de la Paix, are almost the only parts of Paris, whose dimensions suffice for the traffic of a great city in which trade and manufactures flourish.

A plan was in agitation for opening a wide street, which was to run in a right line from the centre of the front of the Louvre to the Place de la Bastile.

The expense of purchasing the houses which must have been pulled down to make this improvement, would not have amounted to more than nine millions of francs; and this sum would soon have been repaid by the increased value of the ground on which the houses of the new street would have been built. Why was this admirable plan abandoned? Can it not be resumed? It certainly is a duty to execute this plan, when we consider the advantages which the new opening would afford to trade; for conveyances of every kind proceeding in directions parallel with the Seine, would pass along a level, straight, and convenient street, and avoid the winding course, and the abrupt and dangerous ascents and descents, occasioned by the approaches to the bridges along the quays.

Let us hope that the ministry and the chambers will unite their exertions, to raise the funds necessary for an enterprise, which would call forth sentiments of gratitude to the government; and which would be eminently popular, because it would be eminently useful.

It must be acknowledged, that in building the

new streets of Paris, not the least knowledge of the proportions suitable to the public thoroughfares of a great capital, has been evinced. Every sensible person must be astonished at the short-sighted calculation of those speculators, who for the sake of giving a little additional size to the houses instead of raising the value of those houses, by building them in streets, whose dimensions would entitle them to rank as the first in the capital, have preferred building mere lanes, into which light and air can scarcely penetrate. It is for the local magistracy of Paris to lay down regulations against the building of these narrow streets, and to prevent speculators from disfiguring, by their present stupid and sordid system, a city whose monuments would entitle it to rank among the finest capitals of the civilized world, if its public thoroughfares were kept in better condition, and were better proportioned for the purposes of business and pleasure.

One thing which materially contributes to embellish the principal cities in England, is the custom of forming regular and spacious squares, in the centre of which, are gardens surrounded by elegant railings. In these gardens, the verdant grass plots are intercepted by long walks covered with yellow sand, shaded with trees and bordered with flower-beds. The sight of fresh verdure is an agreeable relief to the eye in the midst of a crowded city. This vegetation, moreover, contributes to purify the atmosphere; it absorbs a great portion of the rain,

and diminishes the mass of water which it is necessary to carry off by drains. The gardens of the squares, are open only to the inhabitants of the surrounding houses, who defray the expense of keping them in order. Thus the public at large are not called upon to maintain an expense which contributes to render the town at once pleasant and healthful. In building new streets, care is taken to make them open into these squares which are adorned equally by art and by nature. When improvements and enlargements take place, plans are drawn out before hand, and private individuals are obliged to conform to them. In describing the works of the New Town of Edinburgh, we shall notice a remarkable example of this wise regulation*.

We will now speak of the superficies of the streets and roads in England. At first, carriage-roads were formed merely by enlarging the paths made for horses; then by laying down gravel

* How happens it that in the Chausèe-d'Antin, which has almost all been built since the middle of the last century, the public authorities, who so ably carry many designs into effect, did not trace out a single square worthy to adorn that beautiful district of the French capital? For example, what a magnificent effect might have been produced by a regular and spacious square adorned with verdure and flowers, situated at the point at which the Rues du Mont-Blanc and de Saint-Lazare cross each other? Might not a square be equally well situated in the middle of the Rue de Richelieu? The most suitable points for new squares, would be at the ends of the principal bridges, and at the points

extracted from the neighbouring ground. Down to the year 1542, even the streets of London were made in this way. According to the records of parliament, it appears, that at the period when the new method of making roads was proposed to be extended to the distance of a few miles beyond the capital, great opposition was raised by the neighbouring landowners. They wished to retain their monopoly of supplying the capital with provisions.

There are still some gravel roads in the best parts of London. In the country, paved roads are almost an exception. Lancashire is the only county in which they are to be met with beyond the boundaries of the towns.

The gravel roads in London present the finest possible appearance. Even in winter, scarcely a rut is to be seen upon them. However, they are found to be more fatiguing to horses than paved roads. The road surveyors who were examined before the special committee of 1819, affirmed, that

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at which the principal streets meet. It is but just to confess, however, that in this respect, Paris has materially gained since the revolution. The Places du Châtelet; de Saint Sulpice, de la Bastile, du Carrousel, are ornaments which may be cited as models. But none of these places are yet entirely cleared, any more than the enclosure formed by the Tuileries, the Louvre, and the lateral galleries, which from its extent, is worthy of the monuments of Sesostris and the glory of Thebes. In short in all the cities of France, improvements for securing health and safety and facility of communication, have yet to be effected. They ought to be objects of emulation to our magistracy.

taking the average of every day in the year, horses will go through more work with the same degree of fatigue on a paved road than on a gravel road, if the draught be considerable. This assertion is confirmed by the experiments made by Mr. Edgeworth, who, in his work on roads and carriages, declares himself decidedly in favour of paved roads for all places where there is active traffic.

In the Commercial road, which leads from the docks to the city of London, the centre is paved and the sides are covered with gravel. Mr. Walker, the engineer of this road, proposed that an additional space of from ten to twelve feet, on either side, should be paved for heavy carriages, and that the middle should be reserved for light and rapid transport. Thus the parts covered with gravel would have been devoted entirely to foot passengers. On the subject of paving, Mr. Walker gives some hints which seem to be well worthy of adoption.*

The stones should be cut, not in the form of a cone, but in the form of a cube, and made so as to join as exactly as possible. Care should be taken to pick all the stones which are of the same width and height, so that they may be laid down in uniform rows, which, besides the regularity of their appearance, possess the advantage of resisting pressure equally along their whole length. The stones, after being laid down, are beaten in, and those which sink below the common level are immediately removed. The interstices between the stones, are filled up with fine sand. All the pavement that has been laid down in the morning, should, if possible, be watered in the evening. Next day it

should be again beaten in, and covered with a layer of fine sand, from two to three inches in thickness, which gives the road time to consolidate without the violent concussions occasioned by the passage of wheeled vehicles.

Mr. Walker has found it to be a very advantageous plan to fill up the crevices between the stones with lime-water, or to mix for the same purpose, some scales or filings of iron with gravel. The water which runs along the pavement, filters through the crevices, and oxydes the iron, which, together with the gravel, forms a solid body which adheres to the stones. Mr. Walker estimates the amount of the burdens annually conveyed along the Commercial Road, at 250,000 tons. Calculating at three shillings the price of conveying each ton on the paved road, the transport of each ton would cost at least four shillings on the gravel road. By this means, there would be in one year a saving of 12,500*l.*, a sum almost equal to the original expense of the paving.

Sometimes those parts of the carriage road over which the wheels roll, are covered with free-stone. This method is adopted on the quays of the London Docks, as in the streets of Florence. It has the advantage of suppressing the resistance occasioned by the jirking of the wheels on the pavement. We may observe, that roads made in this manner, may be crossed with ease in any direction.

We will describe, in chap. 6, the iron rail-ways which are sometimes made in the interior of towns. It was even attempted to cover the streets entirely with iron pavement. The plates representing this kind of pavement, afford a more accurate idea of it than could be conveyed by a long description. I have seen specimens of this pavement in London, near Blackfriars bridge and Leicester-square.

The enormous expense of this iron pavement, has hitherto prevented it from being extensively adopted. Yet this expense must appear less excessive in London than elsewhere, owing to the dearness of the ordinary pavement, for the horse-roads are made of granite brought from Scotland and Cornwall, and the flag stones are brought from the peninsula of Portland, on the coast of Dorsetshire. The conveyance of these materials is a considerable branch of mercantile navigation.

CHAPTER II.

System of laying out Roads.

The old roads of England were at first merely paths for foot travellers, and were traced out without any kind of method. These paths which were enlarged in course of time, have served successively for the passage of horses and carriages. To this origin may be attributed the windings, and particularly the rapid slopes which the roads in many places present. We know, indeed, that the directions which are preferable for foot travellers, are in many cases very different from those which are suitable for horses and carriages. The limit of the slopes beyond which it would not be advantageous to follow the direct road, is much less restricted for foot travellers than for horses, and for saddle horses and beasts of burden, than for the teams attached to wheeled vehicles.

The roads destined for foot passengers, having been originally mere paths traced by the footsteps of the huntsman and the peasant, were turned aside from their natural direction by every obstacle which the nature of the ground presented, which obstacles are however now considerably diminished. Thus many roads were carried over heights to avoid

marshes which are now dried up and rendered passable; others deviated from their natural course, that they might be made to communicate with the fords of torrents and rivers, whilst these water-courses can now be crossed by the bridges which have been subsequently built in favourable situations.

When the necessity for more extended and easy communications increased with the progress of manufactures and trade, the roads were gradually enlarged and improved, and pains were taken to render them more straight and to lessen the abruptness of their turns and slopes. But these works have been very slow in their progress; they are yet far from being completed; and the state of the roads in England still affords scope for the exercise of that spirit of improvement by which the English people are animated.

In order to examine regularly the configuration of the roads, we will consider, following the direction of their length, first, the appearance they present when viewed vertically and horizontally, and next their transversal form, that is to say their profile.

The three kingdoms of Great Britain no where present those immense plains, whose perfect level admits of roads being made horizontal along their whole extent. The English would not even prefer level roads, to those which are varied by gentle slopes and by continual undulations. In Great Bri-

tain, it is almost a generally received opinion, that a perfectly horizontal road is more fatiguing both to horses and foot travellers, than a road interspersed with gentle rises and falls; because it is said, the alternations of ascent, descent and level ground, requiring by turns the exercise of different muscles, afford rest to those which are for the moment least exerted, and successively bring them all into action.

Great Britain is divided throughout its whole length by a chain of mountains, crossed by numerous roads. In carrying the roads over this chain of mountains, and the hills attached to them, care has not always been taken to select the least elevated defiles, so that the highest point of ascent might be rendered as low as possible. We frequently meet with ascents and descents which might have been easily avoided, either by keeping along the brows of the hills, or by carrying the line of road through valleys, whose course does not form a considerable angle with the shortest course that might be mathematically traced out*. For some time past great pains have been taken to avoid these useless ascents and descents †, in Wales and in the

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* It will of course be understood, that to the geometrical consideration of the length of the roads, must be added other considerations relative to the nature of the ground, the expense, *&c.*

† In the mountainous parts of England, the slopes of the hills are from $\frac{3}{100}$ to $\frac{5}{100}$. However, there are roads in Devonshire and other parts of England, where the slopes are between $\frac{15}{100}$ to $\frac{20}{100}$.

north of Great Britain; but much still remains to be done in the southern parts.

In England, stage coaches, private carriages and carts of light burden, proceed at a trotting pace both in the ascents and descents of the road. Even the greatest slopes cannot therefore be very considerable. Edgeworth calculates that two degrees of inclination are the maximum of these slopes; and Mr. Telford has adopted this proportion as the basis of his improvements on the road leading to Ireland, which passes through Wales and the island of Anglesea. This road presented in many parts, ascents of $\frac{1}{12}$ or $\frac{1}{10}$, and in some places of $\frac{1}{9}$ or even $\frac{1}{7}$ per unit of horizontal length. In proportion as these ascents were fatiguing, the descents were dangerous, particularly for vehicles proceeding at a rapid rate.

In France, notwithstanding all the improvements we have made in our roads, we are yet far from having reduced the slopes to the limits now presented to the slopes in Wales. In proportion as the progress of our trade and manufactures, demands a more speedy, and secure course of communication, the rapid slopes which are the evil of many of our public roads, will doubtless be diminished. We should henceforward lay down the regulation of not giving more than $\frac{1}{30}$ to the most extended ascents, or more than $\frac{1}{25}$ to short ascents.

For some time past the English engineers who are engaged in diminishing the too rapid slopes of the

old roads, have endeavoured to preserve the same degree of slope without interruption along the whole length of an ascent. However, when the ascent is long, it would be advisable to make levels at certain intervals, which would afford resting places for horses and beasts of burden.

When it is not possible to avoid the ascent and descent of a rapidly-sloping hill, without considerably increasing the length of the road, the summit of the elevation is lowered by means of cutting, and the materials thus removed are usually employed in raising the lower part of the road. In districts where there are calcareous hills, the ascents and descents may be considerably diminished by cutting; for the material removed will supply lime to the whole neighbourhood, by which means the expense of the operation will be in part, and often entirely covered.

In the winter of 1817, when the dearness of provisions reduced numbers of unemployed labourers to the lowest degree of misery, many great works of the above kind were undertaken: they had the twofold advantage of improving the condition of the public roads, and rescuing the poor from the horrors of famine. This was turning even adversity to good account, in order to secure new and lasting sources of comfort and prosperity.

We will now consider the direction of the roads in their horizontal point of view, that is to say without regard to their ascents and descents. Even con-